THE
AMERICAN ALPINE JOURNAL

VOLUME II 1933 NUMBER 1

CONTENTS

PAGE

The Minya Konka Climb.....*Terris Moore* 1

Nanga Parbat, 1932.....*Elizabeth Knowlton* 18

Nanga Parbat in Retrospect.....*Fritz Wiessner* 32

Mount McKinley, South and North Peaks, 1932
A. D. Lindley 36

The Mount McKinley Cosmic Ray Expedition, 1932
Edward P. Beckwith 45

The Mount Logan Adventure.....*Allen Carpe* 69

Reconnaissance in the Coast Range of British Columbia
Henry S. Hall, Jr. 87

Scrambles on Bear Creek Spire, Sierra Nevada
Norman Clyde 93

Climbing in the Mount Sneffels Region, Colorado
Dwight G. Lavender and T. Melvin Griffiths 97

PROCEEDINGS OF THE CLUB..... 103

BOOK REVIEWS 117

VARIOUS NOTES 121

The price of the *Journal* is $2.00 per copy.

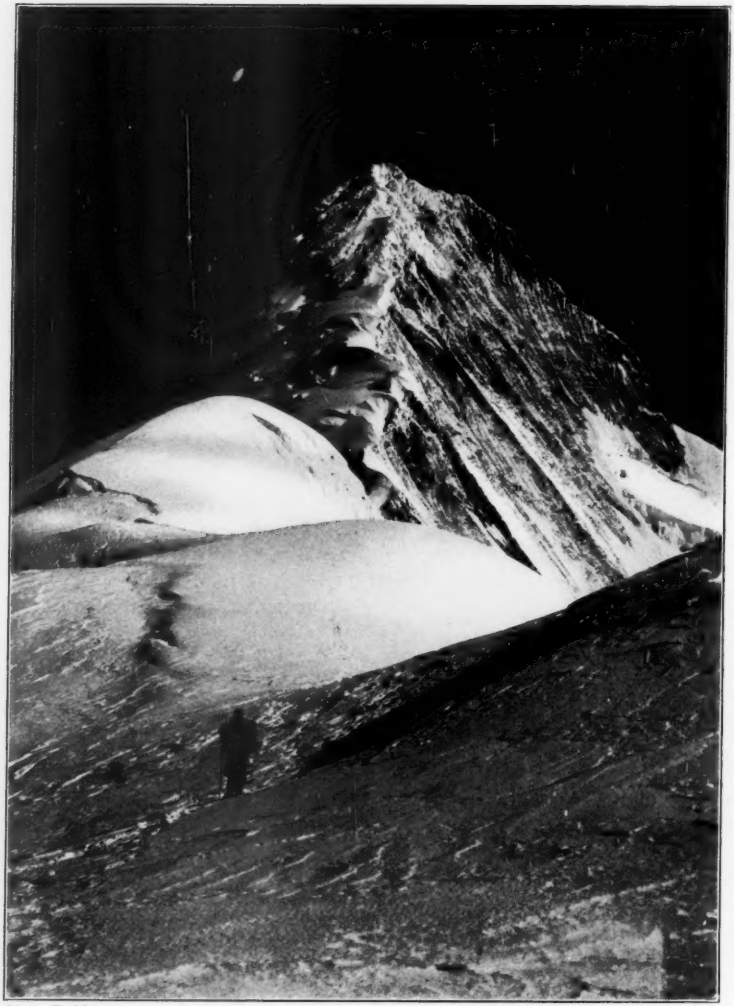


Photo T. Moore

MINYA KONKA, LOOKING ALONG THE RIDGE FROM 19,500 FT.

"Twenty Thousand Hump" in left center, with camp just out of sight on its left side

THE

AMERICAN ALPINE JOURNAL

VOLUME II 1933 NUMBER 1

The Minya Konka Climb

TERRIS MOORE

OUR Sikong Expedition spent three months in and about the Niarong Range on the Sikong-Szechwan border in southwestern China, before the summit of the main peak was attained. The month of August, 1932, was devoted by Burdsall and Emmons to the determination of the altitudes of Minya Konka (24,000 feet) and its subsidiaries, while the whole of September was used up in a reasonably complete reconnaissance (in which all members took some part) to ascertain which route should be chosen for the attempt on the summit. As the work of these two months will be dealt with by others elsewhere, I will simply confine myself here to the salient features of the mountaineering operations. But first a word as to geography.

Minya Konka is situated about forty air miles south of Tatsienlu (Tibetan: Dartendso), a Sino-Tibetan border town located roughly at the intersection of Lat. 30° N. with Long. 102° E.

EDITORIAL NOTE: We are exceedingly gratified to publish this, the first account of the conquest of Mount Minya Konka in southwestern China. It is one of the greatest feats of American mountaineering, however regarded. It is the highest summit ever attained by Americans and it is loftier than any peak in the Western Hemisphere. In technique, the expedition offers a prototype of perfect interaction between advanced and support parties, and, as a whole, it will constitute a milestone in mountaineering history. Mr. Moore has only recently returned from China so we are the more deeply indebted to him for preparing, under pressure and at very short notice, the present paper dealing with the mountaineering aspects of the expedition. The party, which left New York in November, 1931, made a detailed reconnaissance of the environs of Minya Konka, surveyed and mapped twenty-seven peaks, accumulated an important zoological collection and accomplished much general scientific work—all in a territory which must be almost the least-known of any inhabited part of the world. This is barely hinted at in the pages which follow and we hope in a later issue to print a more extended narrative.

Geographically and ethnologically one might call this the edge of Tibet, whose 14,000- to 15,000-foot plateau runs east to this town. The rim of the plateau for some distance south and north of Tatsienlu turns up into the Niarong Range before it falls abruptly to the 1500-foot Chengtu plain of China. East of Tatsienlu the population is Chinese; west of Tatsienlu for more than a month's journey over the great plateau, the population is Tibetan, controlled by the Chinese government. Our base camp was from four to six days distant by trail from Tatsienlu, the route lying over the high plateau to the west.

The Niarong Range is best known to Americans through the article published in the October, 1930, issue of the *National Geographic Magazine,* in which Dr. Joseph Rock used the name "Minya Konka" for its highest summit, "Konka" (pronounced something like "gong-ga") being the Tibetan word meaning "Snow Peak." For the sake of uniformity we are retaining this name.[1]

The members of our expedition were the following: Richard L. Burdsall, civil engineer, of Port Chester, N. Y.; Arthur B. Emmons III, junior in the Engineering School at Harvard, of Dover, Mass.; Jack T. Young, American-born Chinese, member of the Kelly-Roosevelt Expedition for the Giant Panda in the same region in 1929; and the writer. There was no "leader" to our expedition. Each of us was a specialist in one of the different fields or problems with which the expedition had to deal from time to time. And as the party would enter upon various kinds of activities, the other members would instinctively look for suggestions to the individual who happened to be best informed on that particular subject, and usually followed them accordingly.

Burdsall and Emmons left Shanghai late in June, and, traveling with missionaries who knew the region,[2] reached the range and commenced their survey work early in August. Jack Young and I delayed our departure from Shanghai until early in August,

---

[1] See *A. A. J.*, Vol. i, p. 423.

[2] The region about Minya Konka appears to have been frequently visited; I am largely indebted to the West China Border Research Society (foreign community, Chengtu) for the following information:

The 1870's found the French Jesuits, who have had a station at Tatsienlu for years, in possession of a rather detailed and reasonably correct map, the result of their journeys through the region, giving accurate altitudes of

Photo T. Moore

THE LONG NORTHWEST RIDGE AND WEST FACE OF MINYA KONKA FROM 15,500 FT.

Photo T. Moore

MINYA KONKA FROM WEST NEAR LAMASERY

Route lies mostly just behind skyline. Moraine-covered glacier tongue in center

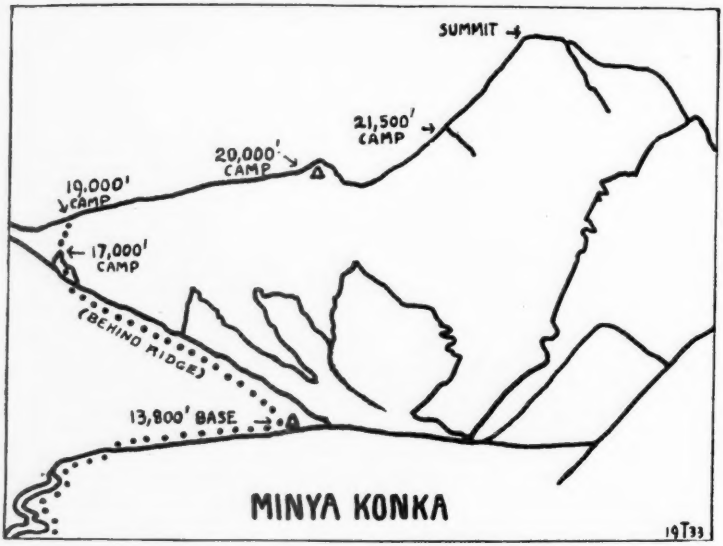


Diagram indicates general position of route of ascent in relation to photograph above, but the actual location lay mostly behind the features shown. Base camp was below the moraine and the 20,000 ft. camp was behind the "Twenty Thousand Foot Hump" seen at the bottom of the long arête of the main peak.

attending to final details of the official permission granted us by the Chinese Government, and journeying to Manila, where we secured the valuable help of Governor-General Roosevelt, who had previously visited this same district.

Joining the others in September, the reconnaissance was completed by the end of the month, and, upon invitation from the Lamas, we made our headquarters at the Konka Gompa Lamasery (12,000 ft.), from which we found ourselves ready to set forth with porters to the site of the base camp (13,800 ft.), by the first of October. We were greatly concerned over the lateness of the season for climbing, fearing cold and storm, and rushed our efforts to get the high camps established as soon as possible. We had been told, however, by the missionary residents in Tatsienlu that the popular conception of Tibet as being deep with snow and intensely cold in winter was *not* true of this par-

---

passes and peaks, which found their way into world maps of that time. They have since, for some unaccountable reason, apparently been removed.

Mr. J. H. Edgar, C.I.M. missionary in Tatsienlu, reports having seen the mountain on a journey from Chengtu to Batang in 1902 and 1903. For the last thirty or forty years it appears to have been frequently seen and studied by the many foreign visitors making the trip to Mt. Omei-Shan. Gill speaks of it in *River of Golden Sand,* Locy in *In the Far East* (in German), Loftis in *A Message from Batang,* etc. It has been properly located on the C.I.M. maps, with an altitude of 25,000-26,000 feet for years. More recently it has been visited and described by many: the Roosevelts in *Trailing the Giant Panda;* Herbert Stevens (in the *R.G.J.*); Dr. J. Rock; Heim and Imhoff; the Dolan-Bowles party of last year; the Urechs and N. R. Wong. The missionary ladies of West China now seem to be turning to this region as a nice place for a summer outing; Burdsall and Emmons were visited at the surveying camp by one, who rode in astride of a yak!

ticular part of the plateau. Our subsequent experience bore this out to a very astonishing degree: October showed greatly decreased precipitation over September, and the temperature remained about the same.

October 2nd: The four of us set off from the Lamasery with six porters, one of whom was a woman, and working all day reached the site of our base camp at 4 P.M. Emmons and I pitched a tent and remained overnight, all the rest returning immediately to the Lamasery.[3]

October 3rd: The base camp lay in an alpine meadow at the foot of the great northwest ridge of the mountain, and Emmons and I started climbing from here, taking 40-pound loads, and reconnoitering a route up. We reached only about 15,500 feet that day, climbing over glacial moraine and loose steep rock, and, leaving our loads, returned to camp. The two others, with six porters, had meanwhile made another trip up from the Lamasery, leaving four porters' loads there, behind them, and now camped overnight with us.

October 4th: Burdsall, Emmons and I, carrying 35-pound loads, climbed to yesterday's stopping point (15,500 ft.) by 1 P.M., and continuing, reached the very tip of "The Rock Pyramid," the highest part of the snow-line on the ridge, (17,000 ft.), an hour before sunset. The climbing was of only moderate difficulty, and could be managed safely without ropes. Burdsall returned alone immediately to the base camp, Emmons and I establishing a small camp on the snow and occupying it for the night. Jack Young and porters brought the remaining loads from the Lamasery to the base camp the same day.

October 5th: 17,000-foot camp. Early morning temperature 20° F. Emmons and I went down, meeting Burdsall and Young coming up with two porters at 15,500 feet. Here Young sent the two porters down alone, in order not to break them in too quickly to the higher rock route. We four went up from this point, carrying full loads, to the 17,000-foot camp; Burdsall and Young then returned to base camp the same afternoon, I going with them part way, picking up a load and climbing back again to the 17,000-foot camp, where Emmons had meanwhile prepared a good meal.

[3] The rather complicated movements described in the following paragraphs, day by day, are indicated graphically in the diagram printed on page 11.—*Ed.*

October 6th: Morning temperature 20° F. Emmons and I, with moderate loads, went off reconnoitering a way through difficult technical snow and ice climbing for the top of the great northwest ridge. Due to the necessity for frequent side to side investigations, our lack of acclimatization, etc., we were forced to dump our loads at 17,500 feet. Finally, however, we worked out a route to the flat top of the great ridge (19,000 ft.). Hastily descending, I shot through the lid of a crevasse at 18,500 feet, Emmons holding me magnificently on the rope.

The same day Jack Young was ill at the base camp, and Burdsall, packing a heavy load, climbed up to the 17,000-foot camp alone, two porters having accompanied him with loads as far as the snowline at 16,700 feet, where they deposited their loads and returned to the base. Burdsall spent the night with us in a second tent.

October 7th: I went down to the 15,500-foot dump, meeting Jack Young and two porters there packing loads up. Taking a load here myself, the four of us moved up, the porters dumping theirs at 16,700 feet and returning to the base. Burdsall and Emmons spent the day relaying between the porters' dumping place at 16,700 feet and the 17,000-foot camp. We moved this camp (two tents) to a more suitable location farther onto the snow, and now felt ourselves well established here.

October 8th: 6 A.M., temperature 14° F. The four of us on one rope, myself leading, carried good loads over the previous route to the top of the great ridge at 19,000 feet. A nasty storm out of the southwest with a high wind commenced here. Emmons anchored on descent to 17,000 feet.

October 9th: 17,000-foot camp. Everyone felt lazy and took a day off. Burdsall and I played chess, he winning several games!

October 10th: Up early to find clear weather but a heavy snow, fallen in the night, spoiled our trail up. Emmons and I started off on a rope with heavy loads, breaking trail in the soft snow. Burdsall and Young followed on another rope, also with heavy loads, gradually catching us at midway point. All four together reached the top of the ridge and the 19,000-foot campsite (placed on the northeast side of the crest to get protection from the strong west wind). The plan was that inasmuch as we had only been able to bring sleeping bags for two to this camp, Burdsall and Young would return to 17,000 feet the same night,

leaving Emmons and myself at 19,000 feet to start a higher reconnaissance the next day. Owing to the heavy snow, however, our rate of progress was much delayed, so that it was two hours to darkness before Burdsall and Young could commence their descent. This they gallantly undertook in the face of imminent darkness, gathering storm, and difficult route. Emmons and I at once set about completely establishing the 19,000-foot camp, worrying greatly about the other two because of the rapidly increasing intensity of the storm and the low visibility. We were unexpectedly relieved, however, near the time of full darkness, to hear their returning voices. After some considerable descent, conditions had greatly increased in severity, making their return back up to our position at 19,000 feet advisable. Although the four of us were now forced to spend a rather miserable night here (there being only two sleeping bags between us), we heartily commended their prudence in a situation which might have resulted in disaster.

October 11th: All four at 19,000 feet. Morning temperature 10° F. Burdsall and Young off early, descending to lower camps in order, during the next few days, to pack up more food (recently come in by courier from Tatsienlu), for the purpose of further consolidating our position. Emmons and I meanwhile undertook to establish a light camp at 20,000 feet and to reconnoitre the higher reaches of the mountain in a day's climb from there.

The same day Emmons and I, working along the flat top of the great ridge, progressed eastward for perhaps a third of a mile to about 19,500 feet for the purpose of reconnaissance. All had wondered how the final 4,000-foot ridge of the Konka would appear upon closer inspection, and also whether it was possible to get around the feature we called "The Twenty Thousand Foot Hump" which would allow access into the little gap just at the foot of the final arête. The weather was splendid, and what we saw raised our hopes considerably. Moreover the route to the summit we could now see would lie over a face rather than a sharp ridge, and thus give considerably more latitude in working around difficult features which might present themselves on the final high climb. We returned early to the 19,000-foot tent and rested during the afternoon.

October 12th: Taking a tent and one load of food, Emmons and I returned to our yesterday's position on the ridge and moved

Photo T. Moore

17,000 FOOT CAMP

Photo R. L. Burdsall

DIGGING OUT SNOWED-UP SEVEN-FOOT TENT AT 19,000 FT., LOOKING NORTH

Photo J. Young

PRIOR TO AN ASCENT THE PORTERS PRAYED AND BURNED INCENSE AT AN ALTAR WHICH THEY ERECTED NEAR BASE CAMP

Photo R. L. Burdsall

TIBETAN PORTERS NEAR BASE CAMP

Second from right is a woman

further along to 20,300 feet to the summit of "The Twenty Thousand Foot Hump." Here we found ourselves cut off by a cliff from further progress, and had to return slightly and descend, finally dumping our loads at a suitable camp site at 20,000 feet on the northeast and sheltered side of the hump on top of a large stable sort of ice block or serac. Returned late to the 19,000-foot camp, finding it badly snowed up from the moving of a drift by a shift in the wind.

October 13th: Both of us were very tired, and took a day off dozing and resting in our bags.

October 14th: Emmons and I got away from the 19,000-foot camp about 10 A.M., carrying one sleeping bag (90 x 90 inch size), one air mattress, some food and the Primus stove, and packed these during the day to the 20,000-foot camp site. Here we established the 20,000-foot camp, our plan being to sleep together in the single bag overnight and make a long day's climb, reconnoitering up the summit ridge as high as possible, the next day.

October 15th: With a superhuman effort for this 20,000-foot altitude, we got off at dawn, but making a slight error at the outset in our choice of route, became so hopelessly involved in the intricacies of a great and rather hidden icefall on the north side of the 20,000-foot gap that it was mid-afternoon before we had fought our way free of the difficulty, got across the 20,000-foot gap, and actually set our feet on the beginning slopes of the last 4,000-foot ridge. We now saw an easy route, requiring only an hour, which we should have followed from the 20,000-foot camp across the gap. Finding the day far spent, we decided upon a quick return to the 20,000-foot camp by the new easy route, there to rest in anticipation of a renewal of our efforts the next day.

October 16th: Emmons and I set off again without loads from the 20,000-foot camp at dawn. Following the new route, in two hours we were across the gap and at our yesterday's farthest point. We climbed steadily, keeping well to the southwest edge of the arête, and were pleased to find the slope of not very great difficulty, it being easily possible to walk on crampons without step-cutting over practically the entire route. This, incidentally, lay over snow, dry and hard-packed by the furious blasts of the wind which appears to beat continually against this ridge from the west. Rising above 20,000 feet, we noticed three white peaks

close together, very far away on the southwest horizon. Due west, at a very great distance, there was a white isolated peak of large proportions. We continued climbing till 2 P.M., at which time we appeared to have reached an altitude of 22,500 feet. All other peaks in the range were below the horizon, and we estimated our position at 1,500 feet short of the summit. Thoroughly exhausted by the altitude, we returned, reaching the 20,000-foot camp at 5 P.M. Here we faced the unattractive proposition of having to spend a third night together in one sleeping bag. As it was now our intention in any case to return at once to the base camp for a much needed rest, we decided that one of us should push on to the 19,000-foot camp in the two hours of light that were left and pass the night there; thus each of us would get some rest enjoying a separate bag apiece. We put it to chance, and the result falling on me, I proceeded down and spent the night (waterless—there being no stove at this camp) at the 19,000-foot camp.

October 17th: It stormed in the night, and Emmons reached me at the 19,000-foot camp rather early in the morning, reporting that the tent at 20,000 feet had actually been blown down with him inside of it. We roped up and started the difficult descent off the ridge to 17,000 feet, where in the afternoon we came upon Burdsall and Jack Young, occupying this camp in readiness to start up the mountain. They had spent the past days packing food with the porters from the base camp up to 17,000 feet. With this splendid supply of food at the 17,000-foot camp, and the two higher camps firmly in position, we now felt ourselves well established on the mountain. They urged us to stay at this camp with them and renew the attack on the mountain immediately. But we were now utterly exhausted from our past week's activities at high altitudes, and both felt a tremendous yearning to spend two or three days dozing in the sun on the green grass about the base camp. Stopping only long enough, therefore, to partake of some food and water which they prepared for us, Emmons and I continued our descent, arriving that afternoon at the base camp. (Burdsall and Jack Young remained at seventeen.)

October 18th: Base camp. Spent most of the day naked in the warm sun and about the fire; occasionally talking to the porters, and doing little tasks such as pounding and boiling our rock salt to purify it so it would go through our salt cellars, etc.

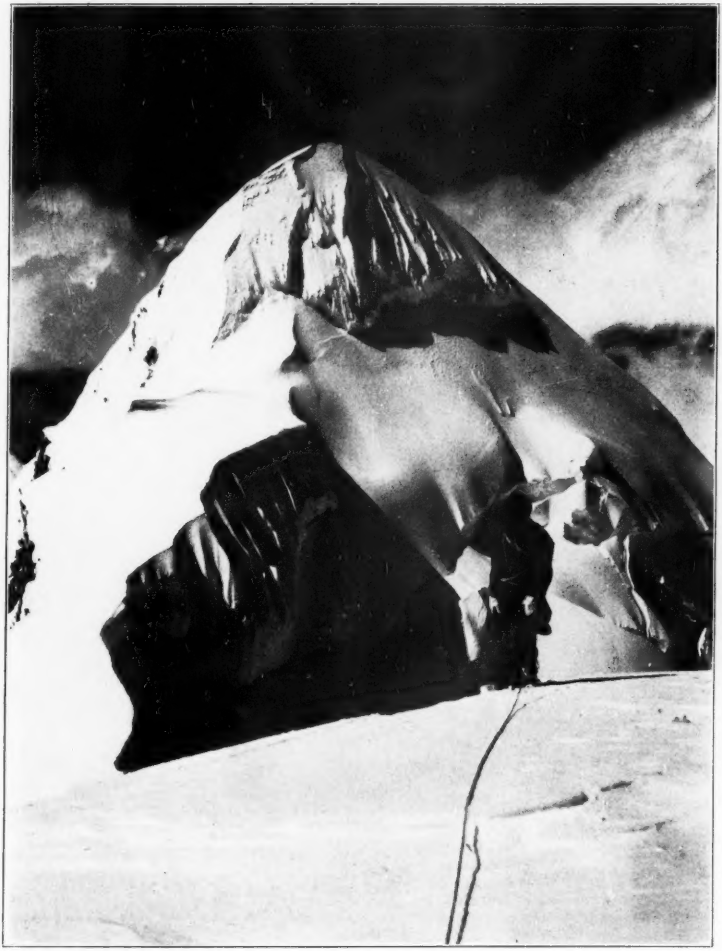


Photo T. Moore

"TWENTY THOUSAND HUMP" AS SEEN FROM BASE OF NORTHWEST ARÊTE OF MINYA KONKA, LOOKING NORTHWEST

Camp behind middle of right skyline. Route traversed from there horizontally to ridge at left

Photo T. Moore

EMMONS AT 21,500 FT. CAMP ON MAIN RIDGE OF MINYA KONKA, LOOKING WEST INTO TIBET

Snowpeak is 17,300 ft. high and appears in view below

Photo T. Moore

FIRST 17,000 FT. CAMP AND NAMELESS 17,300 FT. PEAK, LOOKING WEST INTO TIBET

Jack Young appeared late in the afternoon, having come down from 17,000 feet to talk things over with us. We spent the night together, Burdsall staying above at seventeen.

October 19th: Base camp. Still dreaming around, telling stories and reading American mail just in by courier from Tatsienlu. Burdsall still at 17,000 feet.

October 20th: Much discussion. Final plan was: Jack Young elected to stay below working on the zoological collection and keeping his porter organization making daily trips from the base camp to 17,000, while the other three of us, having the advantage of a smaller party, moved for the summit. I left the base camp just before noon, joining Burdsall at 17,000. Emmons spent some hours with Jack Young cutting "willow" wands, and arrived at 17,000 very late, where the three of us then passed the night in our smallest tent.

October 21st: Late start from 17,000 feet. The three of us packed substantial loads, breaking a snow-filled trail, to 19,000 feet, and returned to seventeen again for the night.

October 22nd: Burdsall, Emmons and I off to an earlier start, and succeeded in packing good loads this day all the way through to the 20,000-foot camp where we passed the night. The 19,000-foot camp as we went by was badly covered, due to the shifting of a drift; moreover the pole appeared to be broken.

October 23rd: Getting away to a good start from 20,000 feet, the three of us spent this day packing food up from the 19,000-foot camp. By a devious system of sharing the work, there were only one and one-half relays for each of us! Investigation revealed that the 19,000 tentpole *was* broken, the surrounding drift supporting the sides of the tent.

October 24th: 20,000-foot camp. Found ourselves well provided with all essentials to establish one higher camp from this point. None of us felt particularly well this day, and the further discouragement of an unusually severe windstorm outside caused us to take a day off dozing and resting in our bags. Spent some hours amusing ourselves by making out a list of "The Most Luxurious Foods a Person Could Possibly Take on a Canoe Trip"!

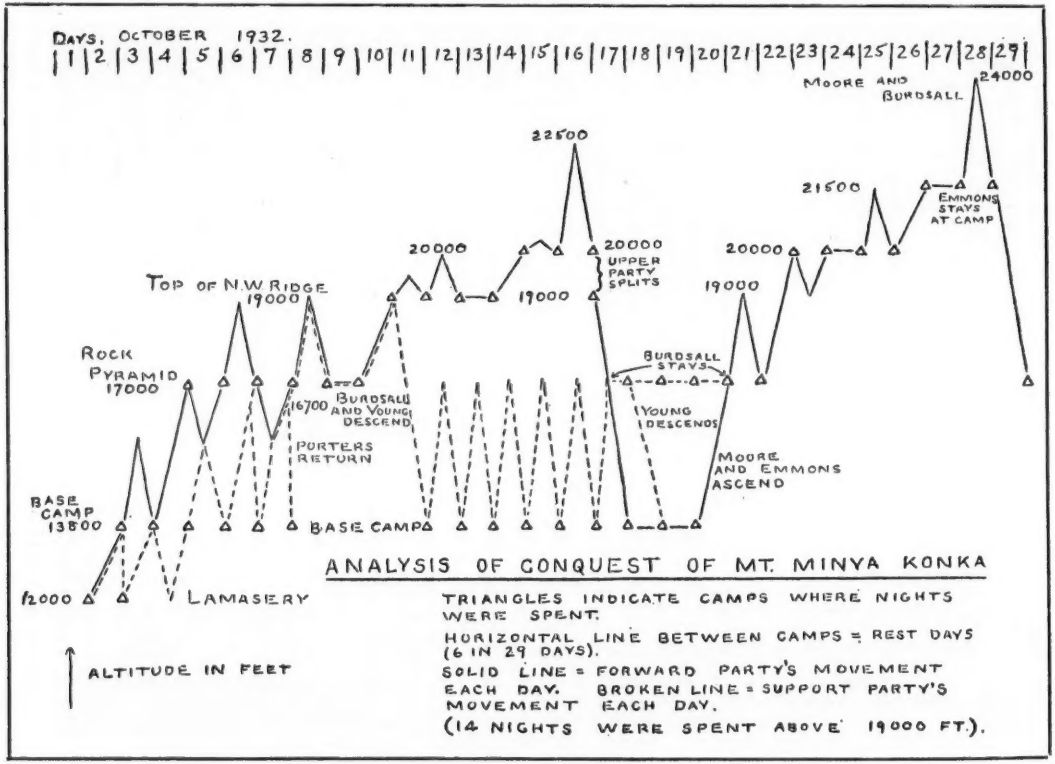
October 25th: 20,000-foot camp. Obs. morn. temp. 4° F. Est. min. temp. 0° F. Three of us packed a load of food through to 21,500 feet and dumped it at the only likely looking camp site.

It was Burdsall's first time over this route which followed exactly the line of Emmons' and my previous reconnaissance. This day Burdsall carried a particularly heavy load, considering the altitude. Emmons complained of his feet during the day; but an examination of his own, and apparent comfort in the warmth of his bag inside the tent at night allayed any suspicions of frostbite. Very high winds.

October 26th: 20,000-foot camp. This day we carried loads consisting of: the tent (12 lbs.) [thereby leaving 20,000 feet a small food dump without a standing tent], three sleeping bags (38 lbs.), two air mattresses (8 lbs.), Primus stove and gas (8 lbs.), and a few pounds of personal effects each. This totaled between 25 and 30 pounds apiece, and seemed to us very heavy indeed. We moved at an extremely slow pace, reaching our 21,500-foot camp site so late in the afternoon that there was barely time left before darkness for the necessary task of digging a small shelf-like shelter into the side of a sloping wall to protect at least the back of the tent from the continual westerly blast of wind.

That night there was much discussion. Burdsall, owing to the disadvantage he had suffered in volunteering to do the low packing work while Emmons and I were making the previous high reconnaissance, now suffered by finding himself in a rather unacclimatized condition. So it was decided that Emmons and I should make a still higher reconnaissance the next day, to over 23,000 feet if possible, marking the route of ascent with willow wands for our future safety in case of storm, and that we should return to the high camp. We planned to move with Burdsall for the summit itself on the first feasible day thereafter.

This was decided during dinner; but shortly thereafter, Emmons, in attempting to split a frozen biscuit with a penknife, had the misfortune to gash the palm of his left hand to the bone, paralyzing the two little fingers. Everyone, particularly Emmons, agreed that this would incapacitate him for any higher climbing, which was a source of great regret to all of us. We discussed the new situation, and finally agreed that in view of the injury to Emmons' hand, the only chance left of climbing the mountain was for Burdsall and myself to make one single last try for the summit from this camp, Emmons meanwhile waiting for us in his sleeping bag in camp. Out of deference to Burdsall's unac-


DAYS, OCTOBER 1932.
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29
MOORE AND BURDSALL
24000
22500
21500
EMMONS STAYS AT CAMP
20000
20000
UPPER PARTY SPLITS
20000
19000
19000
TOP OF N.W. RIDGE
19000
ROCK PYRAMID
17000
16700
BURDSALL AND YOUNG DESCEND
PORTERS RETURN
BURDSALL STAYS
YOUNG DESCENDS
MOORE AND EMMONS ASCEND
BASE CAMP
13800
BASE CAMP
12000
LAMASERY
ALTITUDE IN FEET
ANALYSIS OF CONQUEST OF MT. MINYA KONKA
TRIANGLES INDICATE CAMPS WHERE NIGHTS WERE SPENT.
HORIZONTAL LINE BETWEEN CAMPS = REST DAYS (6 IN 29 DAYS).
SOLID LINE = FORWARD PARTY'S MOVEMENT EACH DAY. BROKEN LINE = SUPPORT PARTY'S MOVEMENT EACH DAY.
(14 NIGHTS WERE SPENT ABOVE 19000 FT.).

climatized condition, we decided to rest another day before making this attempt.

October 27th: We dozed in our sleeping bags and occasionally fought the wind which banged the tent furiously all day. Burdsall and I played two games of chess on the tiny pocket set Emmons had brought along.

October 28th: Succeeded by a superhuman effort in rising at 3.40 A.M. Eating and warming up the breakfast prepared the night before, at which we were helped by Emmons—Burdsall and I managed to adjust our crampons in the darkness and were ready to start upward at about 5 A.M. The first half hour we traveled perforce by flashlight, over a not very difficult route which I remembered from Emmons' and my reconnaissance of the sixteenth. Half past eight found us at the position of our previous high point, approximately 22,500 feet. Immediately above there was a stretch of a few hundred feet which had been giving us concern; we soon found with gratification, however, that we were able to climb on crampons without resorting to step-cutting, although due to an increase in the slope it became necessary to move with one man frequently belayed. Except for one or two very short pitches it was possible to negotiate the entire length of the great 4,000-foot summit arête without cutting steps. (The average steepness of this slope appears to be less than that of the Fairweather southwest ridge.) At a little over 23,000 feet (estimated) the face of the ridge narrows considerably, and becomes broken up with a number of surface features. Owing largely to the careful study previously made from below with the glasses, we were now able to choose the simplest way through these difficulties, thereby saving ourselves what might easily have been disastrous delay. A little after 1 P.M. we reached a position near the top of the great ridge, and climbing a low wall, now saw to our intense joy an unbroken, though very narrow, crest running to the summit, a few hundred feet above us. We continued on at an even pace, reaching the highest point at about 2.40 P.M., finding three small summit platforms grouped close together. Over the rest of the range and west into Tibet the weather was perfectly clear, while from the range eastward a low sea of clouds completely covered the great Chengtu plain. We exposed some thirty negatives on the summit, temporarily erected the American and Chinese flags, and found it had taken us an

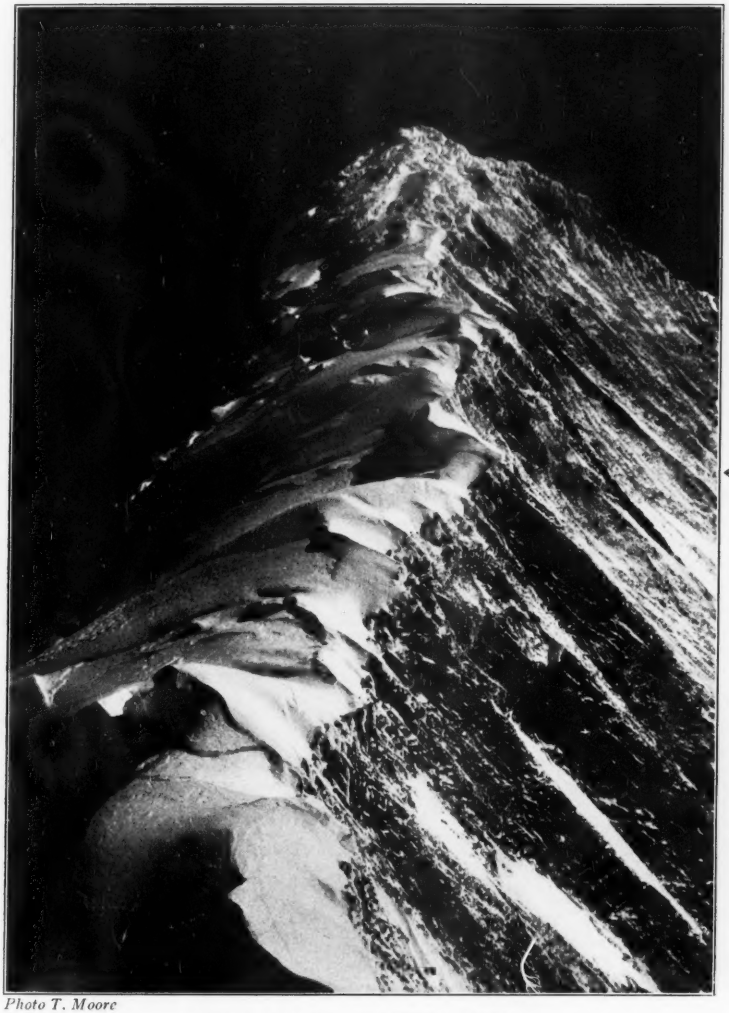


Photo T. Moore

FINAL 4,000 FT. OF MINYA KONKA

Much foreshortened. Route followed closely the crest of the arête on the snow. Arrow indicates position on arête of 21,500 ft. camp

Photo T. Moore

EMMONS LEADING UP THROUGH A CRACK IN AN ICE-FALL

Photo R. L. Burdsall

MOORE ON SUMMIT OF MINYA KONKA

hour to perform these simple operations. We began the descent with all haste. Coming off the summit ridge the wind velocity reached truly alarming proportions, certainly the worst of my experience. Through a moment's carelessness earlier in the day, my face-mask had blown away; and now I found it almost impossible to face unprotected the blast sweeping up the ridge of our descent. It was necessary to climb down with averted face, the free edges of the parka hood flapping directly over one's ears with a noise really not unlike that of machine-gun fire. Occasionally the air was charged with driven snow which stung my unprotected face like birdshot. The violence of the wind abated somewhat during our descent to lower altitudes and we were able to reach our 21,500-foot camp (and Emmons) without particular incident, just before nightfall.

October 29th: Rested very late into the morning; finally broke camp a little before noon, salvaging only necessary or expensive items, and started down, hoping to get at least off the snow before darkness. Burdsall was decidedly unwell and could only proceed at a very moderate pace. Between the 20,000- and 19,000-foot camps, Emmons suddenly began to experience the agonizing pains of frozen feet thawing out: this being the first recognizable warning he had had of his condition. We found the 19,000-foot camp almost completely covered by drift, and stopping there only for a moment, started down over the side of the ridge for the 17,000-foot camp.

The mountaineering over, we returned to Tatsienlu (and later Shanghai) as quickly as possible. Emmons and I reached Tatsienlu, by rapid traveling, in the late evening of November 5th, getting in two days ahead of our own baggage. Burdsall, who had kindly stayed behind at the base camp to pack up the equipment, came in several days later. Jack Young joined us all in Yachow about the first of December, having made a journey eastward through Lolo country collecting zoological specimens.

Equipment, Food, and Comments

During the course of the climb, we acquired a very wholesome respect for the importance of having only the best and most practical equipment; so much often hung upon the satisfactory performance of one particular item, and upon the proper choice of equipment made at home during the days of preparation. In the

same way in which we felt that there are two different schools in "big mountain" mountaineering regarding the organization and disposition of the party and the extent to which porters are used, etc., so also we considered that there are two very distinct schools of thought regarding equipment, and felt that we had chosen ours upon the basis of the experience of the Logan climbers and subsequent expeditions in Alaska. Of course, in doing so, we assumed that the conditions to be met with in the Himalaya or Chinese alps would not be so essentially different—except in the matter of valley glaciation—from those encountered in Alaska where this particular technique was developed.

Tents. We used the "Logan" model, 7 ft. by 7 ft. by 7 ft., with a one-foot wall running around. For high winds we thought that it should not be seven feet high. It is good at the most for four men, and the sleeve ventilator is best. It should be of light *non*-windproof material to give plenty of ventilation. We noticed very little resulting loss of interior heat. There should be a sewn-in ground sheet, but we felt that this should be deliberately *not* waterproof, or else people will have to punch holes in the floor to let water drain down as snow from wet clothing melts or liquids spill from cooking. Hollow jointed steel pole strongest for weight. We also had a two-man tent only five feet wide and four feet high which, of course, would stand the wind better, pitch easier on a narrow ledge campsite and be a little lighter.

Air Mattresses. We thought four-foot lengths were good enough. We used to put our packboards at night underneath our feet to keep them off the cold floor. But this short length may have had some bearing on Emmons' feet being frozen while he was lying in the bag in camp. Two men *can* share one four-foot mattress in a pinch in high camps by just using it for the shoulders and putting clothes under the hips and packboards under legs.

Sleeping Bags. Woods Arctic Eiderdown bags were used. Some were equipped specially with zippers and this was found convenient. Size 78 by 84 inches is right. If party has one or two 90 by 90 inch bags it is well, because two men in a pinch can spend a night in one 90 by 90 inch bag—but don't expect to sleep much. (Also prepare for claustrophobia!) Two porters could probably sleep all right regularly in one 90 by 90 inch bag.

Photo T. Moore

NORTH EXTENSION OF GREAT NORTHWEST RIDGE OF MINYA KONKA FROM 19,000 FT. CAMP

New snow on hills of Tibet at left

Photo T. Moore

GROUP NORTH OF MINYA KONKA FROM 19,000 FT. CAMP

Photo T. Moore

VIEW SOUTHWEST FROM SUMMIT OF MINYA KONKA LOOKING INTO TIBET

Lamasery Valley beneath clouds at right

Primus Stove. We used the large-size genuine Optimus. We took both kerosene and gasoline, having conflicting experiences with both. With conservation one gallon per stove lasts three or four people a week.

Cooking Pots. One pot per stove was plenty. We had one bowl and one spoon per man, and each man carried a small penknife.

Crampons were worn the entire time by each climber while above the snowline (we crossed it where it was as high as 16,800 feet). The ten-point variety was most popular with us. Web strap binders were found satisfactory only at high dry altitudes. My personal experience has been that at lower altitudes where straps are subject to melting and freezing, leather straps are easier to handle, when frozen, than webbing; also that three separate straps crossing the foot are less apt to constrict the foot and induce frostbite than is the more usual system of one continuous strap crisscrossing the foot from ring to ring.

Boots. We were fortunate in securing from Abercrombie and Fitch for the first time a new type of "Barker boot," with a much roomier and stiffer rubber shoe; and one that does not turn up into a canoe-shaped affair like the usual old model. Short leather tops (1 ft.) were most popular. We got boots size twelve although size nine street shoe is normal for us. I am convinced that on these high mountains such a boot is infinitely superior for *warmth* to any contrivance made of leather and nails. The boots were big enough to accommodate at least one pair of—

Felt insoles and would take two. Along with our socks we made a practice of taking our felt insoles to bed at night to dry them out.

Socks. Two to four pairs of woolen socks, half of which were of medium weight. I found that another very thin pair of cotton or silk next to the skin, perhaps gave additional warmth.

Underwear. From two to four sets of the common variety of long winter woolen underwear. The set next the body should be of medium weight, and perhaps another; the rest, heavy. We added and subtracted underwear, rather than shirts or sweaters, for the purpose of creating greater or less warmth as we climbed or descended through various altitudes.

Wool shirts and sweaters were worn; of medium weight, or according to taste.

Wind parkas were of the Alaskan model made by Beebe in Portland, Ore. They were constructed of perfectly splendid material; absolutely windproof (yet, due to parka model, allows ventilation as desired), and still the lightest in weight of any garment on our bodies. The only criticism might be that they tear easily, and that some satisfactory means should be developed for preventing wind from getting under the skirts and blowing them up suddenly. We had two parkas apiece.

Trousers. Windproof gaberdine, Chinese coolie model, except that some of us used a belt and belt rings, too. Extra long; and bottoms equipped with a tape or some arrangement for fastening tightly *over* the boot tops in order to keep out snow and wind.

Goggles. Aviation model.

Face Mask. For very high altitudes. Goggles projecting through the eye holes. Must be ventilation behind goggle glass (yet keeping the ultra-violet out), or the glass will fog, from heat and exertion of the body. Ours were made of thin leather bought in Peking. Each climber continually carried a pair of slit metal goggles (unbreakable) around his neck inside his shirt for emergency, in case others were broken by fall.

Aviation Flying Helmet. If worn on top of the thin parka hood, it served to keep the hood from blowing over one's eyes, a frequently occurring annoyance.

Mittens. One pair, thin leather, large gauntlet mittens to be worn outside, large enough to accommodate two or three pairs of medium-weight inner woolen mittens. An extra outer leather pair and an inner woolen pair are essential to each climber. The leather mittens completed the windproof protection which covered the entire body of the climber, including the joints of the clothing.

Water Bottle. We carried small rubber hot water bottles and kept them continually filled with water for drinking purposes when climbing; we found that the greater the height, the greater the desiccation and thirst. Carried around the neck on a string, or in a pocket—must be near the body or bottle will freeze. Sugar and lemonade powder made it more palatable.

Skin cream for face. Each climber had a little tube.

Packboard or Knapsack. We used the Trapper Nelson Packboard. The Yukon style is not quite so good because it has no bag. We found the packboard superior to Bergans Rucksack, although both were used, because it is difficult to strap sleeping

Photo T. Moore

COUNTRY SOUTH AND WEST OF MINYA KONKA FROM 19,000 FT. ON RECONNAISSANCE

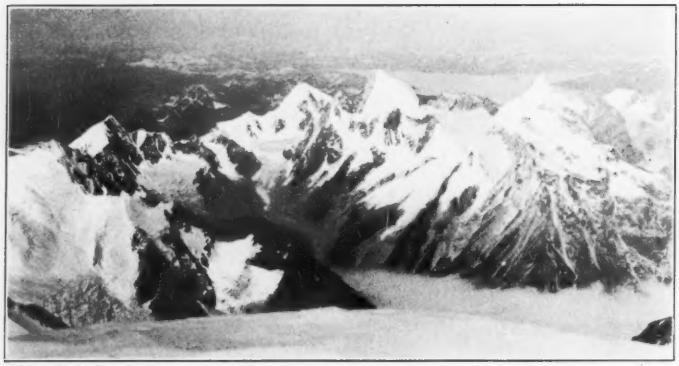


Photo R. L. Burdsall

FROM SUMMIT OF MINYA KONKA LOOKING NORTH. TIBET TO LEFT. CHINA TO RIGHT. THIRD AND FOURTH HIGHEST PEAKS IN THE RANGE

Photo T. Moore

EAST AND SOUTH SIDES OF MINYA KONKA FROM 19,000 FT. DURING PRIOR RECONNAISSANCE

bags and tent onto Bergans. For 30-pound, non-bulky loads, Bergans worked best.

There should be mentioned in addition the following general items: Small folding candle lantern; bandages, iodine and laxative; small flashlight; willow wands: fifty to a mile, high up; rope, ice axes.

This equipment list covers simply the essentials for the high altitude part of the climb. For lower climbing there was, of course, additional equipment and some porters' equipment. Identical equipment was available for all climbers throughout, largely because we had some additional and optional equipment, originally planned for a larger party.

Food. The usual dried soups, sugar, cereals, dried vegetables, dried milk, malted milk, cocoa, chocolate, tinned meat, crackers, jam, etc. These we carried through from Shanghai unopened for only the highest camps. Due to unusual circumstances on our expedition, we had only about half enough of these foods for the high camps, and had to rely on local sources of food supply to round out our list. Around the base of the range, on the Plateau, we got from the Tibetans: easily obtainable quantities of yak butter, yak cheese, Blue (wild Himalayan) sheep meat, rock salt, Tibetan bread and corn cakes, Tsamba, wild honey, bear meat and liver, small potatoes; and by special courier from Tatsienlu: Chinese mein (noodles), eggs, nuts, raw carrots, Chinese bread, tea, brown sugar; and from our great and good friend, Mrs. Cunningham, in Tatsienlu, the most delicious cookies!

Nanga Parbat, 1932

ELIZABETH KNOWLTON

ON April 28, 1932, the German American Himalayan Expedition sailed from Genoa for India to attempt the ascent of Nanga Parbat.[1]

Nanga Parbat is the seventh highest mountain in the world, so that if the expedition had been successful, it would have attained a summit higher than any yet reached by man. The mountain stands, a tremendous isolated massif, northwest of the Vale of Kashmir in the extreme western end of the Himalayas. The dozen or more clustered peaks of its ridges and shoulders rise to a central peak 26,630 feet above the sea.

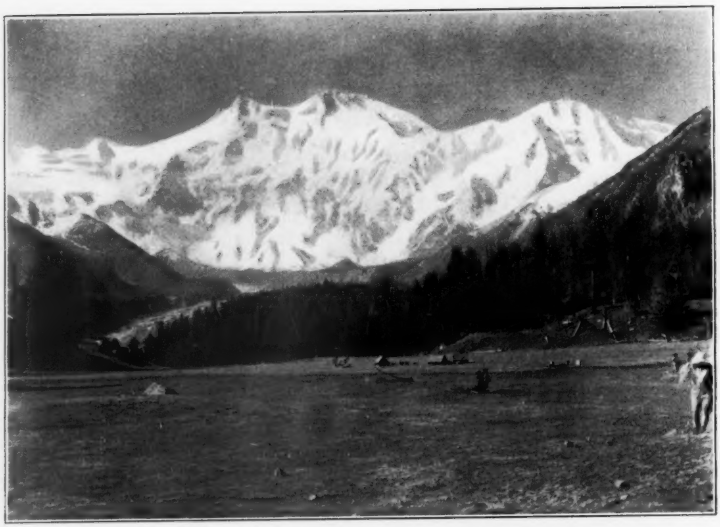
Nanga Parbat is a mountain rich in traditions, worshipped and feared by the natives of all the surrounding country. Its name in Urdu means "Naked Mountain," probably from the bare rocks of its tremendous precipices. In the Dard, the local language, it is known as "Diamir" or "The Abode of the Fairies." The legends of the region relate that the fairies live on the mountain, and take with them certain chosen mortals to share their immortality.

Only one serious attempt on the mountain had ever previously been made. In 1895 A. F. Mummery, the great English climber, entered the region with a party consisting of J. Norman Collie, G. Hastings, and General C. G. Bruce. They made first ascents of surrounding mountains and a reconnaissance of Nanga Parbat and decided to attack it from the northwest, from the Diamirai glacier. Mummery, climbing alone with two coolies, here reached a height of over 20,000 feet, when he was obliged to return because of the illness of one of the coolies. The rest of the party then started around over the lower ridges, to make another attempt on the mountain from the Rakiot glacier. Mummery was to go the shorter way over the Diama Pass and meet them. He started off with two coolies. None of them were ever seen again. It is probable that they were buried in an avalanche.

---

[1] The photographs illustrating this and the following paper are furnished through the courtesy of various members of the German-American Himalayan Expedition.—*Ed.*

NANGA PARBAT FROM APPROXIMATELY 21,000 FT.



NANGA PARBAT AND GANALO PEAK FROM "FAIRY TALE CAMP"

AVALANCHE ON RAKIOT GLACIER CROSSING PARTY'S TRACK

Nanga Parbat had been chosen by the Expedition because it seemed to offer better hopes of success than any other of the greatest peaks. It is comparatively easy of access; it escapes the handicap of the monsoon, which is not felt to any extent in the western Himalayas; and though it had been very little investigated from a mountaineering point of view, it seemed to offer several possible routes. Mummery's explorations had shown that the south side, a tremendous wall of 15,000 to 20,000 feet, was practically impossible, and an approach from the east or west would involve going over a great chain of the minor peaks of the massif to reach the summit peak. But, from all information obtainable, there appeared to be good hope of possible routes from some one of the nullahs of the north or northeast.

The expedition was made up of nine members, with Willy Merkl of Munich as leader. E. Rand Herron[2] of New York was the one American climbing member, the first American to take part in any of the great post-war Himalayan climbing expeditions. I was the other American member, my official position being that of newspaper correspondent. I also acted generally as "Proviantmeisterin," and did all sorts of odd jobs. The other members were Fritz Wiessner of Dresden and New York; Peter Aschenbrenner of Kufstein, Austria; Fritz Bechtold of Trostberg, Bavaria; Herbert Kunigk of Munich; Felix Simon of Leipzig; and Dr. Hugo Hamberger of Rosenheim, Bavaria, as physician.

The expedition arrived in Bombay on May 9, and travelled as directly and speedily as possible to Srinagar in the Vale of Kashmir. There we established ourselves for a week, living picturesquely in houseboats on the Jhelum River, buying equipment and engaging ponies and servants.

During this week we went through a time of great uncertainty and uneasiness. Owing to complicated misunderstandings, we had not in Europe obtained the official permission to enter the District of Chilas, in which the north side of the mountain lies. Permission to visit this district is difficult to obtain, partly because the Chilas tribes are a restless people, only comparatively recently pacified, and the passage of Europeans with an army of coolies might cause disturbances, partly because the district is too poor to have enough food to be able to feed such an expedition passing through.

[2] See page 110.

Therefore, we waited in Srinagar, hoping daily for the desired permission. At last we received word from the government that although we might visit the south side of Nanga Parbat, entrance into the Chilas district could not be allowed. However, we hastened to make fresh representations, promising that we would take with us all our own provisions and food for coolies, and would keep to the higher slopes of the mountain, avoiding the inhabited valleys. The government then readily granted the desired permission.

So on May 23 we set out from Srinagar, following the main caravan route to Central Asia, and in nine days made our way, with pony caravan of about a hundred ponies, to Astor. En route we were obliged to cross the main range of the Himalayas. This involved going over the Burzil Pass, 13,775 feet. At the end of May it was still deep in its winter snow and had not been crossed this year. It was thought, therefore, that it might be necessary here to change to coolies. But the pony men volunteered to attempt it with their horses. We started at two o'clock in the morning, to travel as much as possible while the snow was still frozen hard. Twelve miles of snow lay ahead of us. It was a steep slope to the top of the pass, and even at night the ponies broke through occasionally into soft snow, so by sunrise we had not even reached the top. From then on, the difficulties increased rapidly. As the snow softened in the sun, the ponies were wading deeper and deeper, until in the worst places they wallowed half way up their bellies, and often it would be necessary to unload them, before the pony men could haul and push them out on to somewhat firmer going. It was twelve hours of the hardest kind of work before we reached dry ground again on the other side of the pass, at Sirdar Chauki. There we found a telegram awaiting us from the friendly road contractor at Gilgit. It read "Burzil Pass not yet passable by ponies."

The rest of the trip was without incident, but continually picturesque. We passed or met many caravans of black-mustached, turbaned Kashmiri from the plain, or Mongols returning to Turkestan, flat-faced men, wearing peaked caps edged with fur, and dull red quilted coats, and riding astride piles of skins and embroideries. We went through little hill settlements of round stone houses with mud roofs, where dark-faced women stared at us from under tambourine-shaped hats fringed with silver

ornaments. Here, too, were the hill men in full gray wool cloaks, with little round caps—the sort of people who were to be our coolies all summer.

At Astor we arranged for the change from ponies to coolies, and hired 120 Astori and 40 Baltis. From Astor on, for the rest of the summer, we had the invaluable aid of Leftenant R. N. D. Frier of the Gilgit Scouts, lent us by the Political Agent at Gilgit, to act as our transport officer. We continued a day to Doyan, still by pony, and were joined there by our Balti and Astori coolies, to start the long trek over three 12,000- to 14,000-foot ridges to the base of the mountain. There, also, came our thirty Hunza porters to climb with us on Nanga Parbat. They were sent from the Hunza district, high up among the hills to the north. At first it had been thought that we might import porters from Darjeeling, but we were told that the Hunzas should make very good high-altitude men. This did not, however, prove to be the case: we had trouble with them from the beginning to the end of the summer.

The journey of the next two weeks to the base involved elaborate plans of carrying our loads by relays, as we had not enough porters to move them all together, and proved full of difficulties with coolies and of every sort of transport complications. As this region had previously been little explored, the route we followed had to be scouted out by two of our climbers, who went on two days ahead, traveling fast and light, and sent us back frequent word. Aschenbrenner and Bechtold acted as scouts for the first part of the route, and later Aschenbrenner and Kunigk.

The way took us over the ridge above Doyan and down its almost precipitous sides into the deep V-shaped valley of Leychar Nullah, up over the next ridge and dropping down equally steeply into Buldar Nullah. Here we camped two days, while Herron, Bechtold, and Hamberger explored the Buldar glacier, for a hopeful-looking point of attack for the mountain. They returned unsuccessful, and we continued over one more ridge into Rakiot Nullah, the lower part of which is known as "Tatto Valley."

In spite of coolie troubles it had been a pleasant journey, through beautiful and idyllic country. The lower slopes of the nullahs were full of groves of fine evergreens, and meadows bright with early spring flowers. On the ridges the winter snow

still lingered. Our second camp in Rakiot Nullah was christened the "Fairy Tale Camp," because of its amazing charm. Our tents were pitched beside a clear little brook on a meadow surrounded by pine trees and blue with forget-me-nots, and above towered, gleaming white, the magnificent north face of Nanga Parbat.

Here we received the final word from the scouts, who had now been close to the mountain and had made a first ascent of an unnamed 16,000-foot peak, to look over possible routes. They wrote "Rakiot glacier will surely go, according to our opinion. . . . We favor attacking it here." We therefore established a base camp at the edge of the treeline. (It later was moved, two and a half hours farther up, to a bare grassy plateau [12,400 ft.] between two glaciers, just at the foot of the ascent.)

On our arrival at this lower base camp, where loads were finally collected, and could be checked over, we made the disastrous discovery of the loss of seven bags of porters' equipment. Mr. Wiessner's paper, which follows, describes this loss in detail, and all of the difficulties which it caused. It was undoubtedly one of the major causes of our defeat.

On June 24, Herron and Kunigk started out from the lower base camp for the first scouting directly on the mountain. The two men who had gone in advance had seen what seemed to be a way, leading, first, through a badly broken-up icefall, and, later, winding up steep snow slopes among seracs to a high plateau just below Rakiot Peak with Rakiot Ridge beyond it. This ridge, if reached, could apparently be followed to the saddle between Northeast and Northwest Peaks, and thence to the summit. The two apparent problems presented by this route were getting through the first icefall, and later somehow getting around or over Rakiot Peak to the ridge beyond. If these points of obvious difficulty could be successfully passed, the route appeared to offer good hopes of victory. The first task, then, was to see whether there was a way through the lowest icefall. This was the purpose of Herron's and Kunigk's scouting trip.

The first night, the two men spent in the lonely meadow which was later to be our base camp. Just beyond, to the south, rose the "Great Moraine Hill," between them and the mountain, shutting off all view of the route ahead. Next morning about

six they started, and climbing in half an hour the small moraine ridge to the southwest, were able without bergschrund difficulty to get onto a little glacier by following which they could reach the main Rakiot glacier.

It was their first experience with Himalayan climbing, and they had wondered how it would differ from that in other ranges. But this glacier seemed entirely natural. They had been specially warned of avalanche dangers. Himalayan avalanches are, of course, tremendous and terrible in their size and in the distance that they travel, and Nanga Parbat is noted even among the Himalayas for its avalanches. The climbers saw them, as expected, thundering about every half hour down the great north face of the mountain on their right. Sometimes 15,000 or 20,000 feet they would fall, roaring like express trains, pouring in huge water falls down the cliffs, sliding down the snow slopes, gathering speed and volume as they came, and finally spreading themselves in tremendous fans over the flat glacier, with a great wind going before them, and clouds of snow dust rising as they fell. The two men kept well toward the left-hand side of the glacier, as far as possible from these avalanches. Thus they reached the little moraine ridge that separates this minor glacier from the main Rakiot glacier, up which they were to continue climbing from its comparatively flat lower part into the icefall. It was now about ten o'clock. They had come along well, and the icefall did not look far away. They thought they could easily finish their scouting in a day. So they sat for some time on the moraine ridge, pleasantly resting and discussing esthetics. After a while they started on.

They were now to find some of the differences in Himalayan climbing. They began to feel the altitude, which was from 15,000 to 16,000 feet; the June sun at that height and latitude poured down a burning, dizzying heat, which made them faint and sick in spite of sun helmets; and this heat was also softening the snow, till it became softer and deeper than any Alpine snow they had ever experienced. They plodded on more and more slowly. And now they began at last to discover the tremendous size of these mountains. They had judged the distances by Alpine standards. Here the proportional relations of things were the same—a serac to a glacier, a glacier to a mountain—but everything was done on a gigantic scale.

About noon they realized that they would have to bivouac, and left their packs at a good spot. Here, to combat the still-softening snow, they put on snowshoes, the heavy German ones. These helped slightly, but proved troublesome because of the steepness.[3] In a short time they saw that they could not even complete their scouting before night. They must return to their bivouac place, and go on again next morning.

As they had not really expected to bivouac, they had with them nothing but a small light tent and a can of Ovomaltine—no sleeping bags, no cooking things, and no water. They lay stripped and panting, in the little tent, unbearably hot in the afternoon sun, and melted snow for water by stuffing their canteens full and holding them against the sun-heated sides of the tent. They tried to repeat this process later, in the night, by putting a canteen between their two bodies, but found it too chilly a bed fellow. As the sun went down, the overpowering heat vanished, and it became bitterly cold—so cold that they could hardly sleep. They were very hungry and spent most of the night eating Ovomaltine raw. Next morning both of them found themselves rather sick. But the scouting must be done, so they went on. They made a way among the giant crevasses and seracs, to the little plateau which had been picked upon as a possible spot for a camp. Then they returned.

Now that the route was found, the first two camps were speedily established by Wiessner and Simon: Camp I at 15,450 feet just above Herron's and Kunigk's bivouac, and Camp II at 17,080 feet on the little plateau. At Camp II an ice cave was dug; and such caves were made at all the later camps. They had proved very useful for Bauer's party on Kanchenjunga, being warmer than tents to sleep in and safer from storms and avalanches. It was decided during the summer, however, that these caves would not be used another year, for they took a great deal of time and exertion to build, and were very gloomy places to live in. They became mostly storehouses, and overflow sleeping quarters when the tents were full.

[3] During the whole summer our snowshoes were very little used, in spite of the snow conditions, as the slopes proved too steep for their management, although the lighter and handier American ones might have been useful. Skis would have proved practically useless as far as Camp VII, because of the steepness. It is thought, however, that they would have been convenient farther on, if the climbers had reached the more gentle-appearing slopes, near the summit.

Some days later Wiessner and Aschenbrenner were sleeping at Camp I with four coolies, en route to complete the construction of Camp II. They were wakened in the middle of the night by a terrific roaring, coming nearer and nearer. Then the tent poles broke, and the tent caved in on them. They tried to hold it up a little as best they could, to keep from immediate suffocation. But they thought that their last hour had surely come. Gradually, however, the roaring grew less and died away, and they were pleasantly surprised to find themselves still alive. They crawled out, and were clutched at in the darkness by the coolies, crying "Sahib! Sahib!" Their tent also had collapsed. It proved to be from the weight of snow dust from the edge of an avalanche. The coolies could not be calmed all the rest of the night, but spent it praying with clasped hands to the god of Nanga Parbat. Next morning they insisted upon returning immediately to the base camp, and told their story, and all of the Hunzas said they would start back to their village next day and never venture near the mountain again. There were impassioned speeches by their Jemadar (head man) and by Lieutenant Frier, and finally they were persuaded to stay, with the payment for mountain work of five times the originally agreed wages.

After this, for a while, things progressed well. Camp III was established by Herron and Kunigk at 18,350 feet, and Camp IV, at almost 20,000 feet by Merkl and Bechtold. This camp was erected on the edge of the plateau below Rakiot Peak, so that it was possible to look down and watch large portions of the route up, and arrivals at Camps II and III. There was also a magnificent distant view of the Karakorum. As it was to be used as an upper base camp, two ice caves were built. One of them was a very large one, with three sections for sleeping. The architects of the ice caves had vied with one another to make them uniquely interesting. That at Camp II could boast a window opening into cold and darkness, where the diggers had broken through into a crevasse. Camp III's was round, with a large central pillar. But Camp IV's was the largest and most elaborate of all. The second cave there was used for a kitchen and sleeping place for Ramana, our sturdy, dark-faced Kashmiri cook. Here he spent a month and a half cooking for us and waiting on us, tirelessly, and always cheerfully. He was not even depressed but came next morning to report with a

broad smile, "Ramana finish," when the roof of the cave fell in on him in the night. Though the number of tents varied with the population, there were always at least three, so it was quite a settlement. Because of delays and difficulties it developed that several of the climbers and the writer spent over a month there or higher without descending.

The climbers had now to settle the second and more difficult-appearing problem, the attainment of the ridge beyond Rakiot Peak. Wiessner and Simon believed a route was possible around the base of Rakiot Peak; but it would necessitate going through a very badly broken-up area, with great technical difficulties, and most dangerous from the probability of falling seracs. Aschenbrenner and Kunigk thought that a better route might perhaps be found high over the shoulder of Rakiot Peak. So they made a reconnaissance in that direction, incidentally ending by making the first ascent of this summit, 23,170 feet. They bivouacked the first night just below the main ridge, with Herron and Hamberger acting as porters to carry loads to their bivouac. They then climbed along the shoulder, up difficult rocks slippery with snow and verglas, and so along the ridge to the summit. They discovered no possible route for porters in any of this climb. The dangerous way among the seracs and crevasses would have to be followed.

The next week or two were a time of strenuous effort and frequent misfortunes. Herron and Aschenbrenner started from Camp V (20,800 feet), located just before the difficult region, to find a way through this, and establish Camp VI, but after an hour or two they were obliged to turn back, as Aschenbrenner had developed a badly frozen foot. The feeling did not return in it after three weeks of waiting at Camp IV, and he was not able to do any climbing again that summer. Kunigk was taken sick. His illness later proved to be appendicitis, and he must go down with Dr. Hamberger to the base camp, and on to the hospital at Gilgit, five days away, for an operation. The others went on again to Camp V, and finally cut and forced a way through the seracs and among the crevasses, to establish Camp VI at 22,000 feet, in the lee of a bergschrund, in the amphitheater below Rakiot Ridge.

Here they began to be very definitely troubled by altitude. Of course, even by Camp IV, plenty of altitude symptoms had been

RAKIOT PEAK SHOWING SIDE ASCENDED
Camp VII was established on the ridge extending to the right

CLOUDS OVER INDUS VALLEY FROM 14,000 FT. NEAR CAMP I

CHONGRA PEAKS, 22,800 FT., FROM NEAR CAMP V

felt, but they said that the difference between Camp V and Camp VI was a very noticeable and sharp one. From then on, they had to fight to a marked degree all the regular handicaps—of breathlessness, and feeling of extreme lassitude, and difficulty in making the slightest exertion; and suffered the other extreme discomforts related by climbers at really high altitudes. They remained convinced, however, of the wisdom of their decision not to bring oxygen, because its value did not seem great enough to pay for its weight. Herron and Wiessner, especially, noticed even in their short stay above 20,000 feet that they began to feel the benefits of acclimatization; and all considered it better to depend on such improvement than on oxygen.

Four days' fighting were necessary to reach Rakiot Ridge from Camp VI. The first day, Herron and Bechtold started off toward the right, but after an hour and a half's work in snow that reached up to their waists or above, were unable to progress more than a hundred feet or so. The next day, Herron and Bechtold started again, to the left this time. The snow appeared less impassable, but Bechtold almost immediately found himself too ill to go on. Herron, reluctant to let a day of good weather be lost, pushed on up alone. As he was considering the problem of the first bergschrund, well on the way up, he saw Simon, the one other man who had proved well enough to move, following him with a rope. He tied it on, and they continued, fighting through snow gradually getting softer and deeper, and broke a trail part way up to the ridge. There they reached a place where the snow seemed bottomless, and turned back exhausted. The following day they were obliged to go down to Camp IV with very bad sore throats and general exhaustion.

Meanwhile, Wiessner had arrived at Camp VI with two coolies. One of them was so overcome with mountain sickness that he lay all day groaning, and the other refused to go on without him. So the three sahibs, Wiessner, Merkl and Bechtold went on up without coolies or loads, using the trail broken by Herron and Simon the day before. At the place of apparently bottomless snow, Wiessner, leading, was able to get across by half crawling and half swimming. Then the three men at last reached the ridge, returning to Camp VI that night. The fourth day, Merkl and Bechtold carried up a light tent, sleeping bag, and provisions, and Camp VII was finally established at the point

reached before on Rakiot Ridge, 23,200 feet. The way to the summit of Nanga Parbat now seemed to lie clear ahead.

They were obliged, however, to come down next day, because of scanty provisions and threatening weather.[4] Such a high point was never reached again during the summer.

All of the next month, which we spent mostly at Camp IV, is a wearisome and monotonous story. Through almost all of July, except for one short storm, we had had perfect weather. There were, to be sure, great extremes of temperature, from around 100° F. in the noon sun, to well down toward zero at night. But we had escaped storms and new snow. With the end of July, they began, and continued with maddening frequency throughout August. Nor were they the only problem. Failure of coolies to arrive at Camp IV, failure of sufficient coolie rations, sickness of coolies at Camp IV so that they could not be taken farther—one or another of these troubles occurred in the brief spells of fair weather, and held the climbers back, day after day, while they chafed to push on. As Herron wrote in a letter to a friend, "The month of August was a time of waiting and expectancy, of a chained imprisoned impetus to move and go up. . . . I was never in my life so spiritually stretched upon one single point—that is, that damnable place up there, so near, to be seen nearly every day only a few miles away, for weeks, and yet so far, in fact never to be reached at all this year."

The final misfortune came on August 20, with the failure of coolie rations at the base camp. Then it was decided we might as well all go down, while waiting for rations to be sent for, to give the climbers a chance to rest in lower altitudes before the final push. Certainly, never had grass and flowers looked more beautiful than when we returned to them after over a month in the snow.

Meanwhile, on August 12, Aschenbrenner, Bechtold and Simon had left Camp IV, obliged to go back to Europe by the end of their leave of absence from business. This meant that of the climbers, only Merkl, Herron and Wiessner now remained, with Lieutenant Frier. Now at last Frier must reluctantly go, also to return to his military duties in Gilgit.

---

[4] For detailed reasons for this necessary withdrawal, see Mr. Wiessner's paper following.

On August 28, after more delays of bad weather, everything was finally ready, and a beautiful clear day dawned for the beginning of the final push. At eight-thirty Merkl, Herron and Wiessner started up the mountain with twelve coolies, carrying coolie rations for ten days. It was the largest and most completely equipped party that had ever left the base camp. Everything looked propitious at last.

But as soon as they got on the glacier, their troubles began. In spite of one previous day of sunshine since the last storm they found the snow had not melted and hardened as usual, but was still soft and powdery—regular winter conditions—which made slow difficult climbing. The coolies were going very badly. The crevasses had opened so widely and numerously during the summer that the route had been gradually pushed over under the dangerous great north face of Nanga Parbat. They were a long time crossing this avalanche-threatened area, and had barely reached safety on the steep slopes beyond, when the largest avalanche seen during the summer poured down into the basin, sweeping away for hundreds of feet the tracks they had just made. Their progress to Camp II in the deep, soft snow was slow, and they arrived exhausted. Next morning, after a sleepless night, they pressed on to Camp III. They found on the steep slopes that the snow was still like winter powder, and slipped so under foot that it was often necessary to clear it away and cut steps in the hard ice beneath, and the coolie between Herron and Wiessner, who alternated leading, sometimes had to be actually pulled up on the rope. It took them seven hours to get to Camp III, usually a trip of three or four hours. Between fatigue, and the excitement of being at last on the way, they passed at Camp III a second sleepless night.

As they went higher, they found snow conditions growing continually worse. Camp IV, usually an easy stroll of an hour and a half to two hours, was reached only in five hours. Camp IV was completely snowed under, so that it took an hour and a half to dig out the ice cave kitchen even far enough to locate the stove.

Next day was a well-earned day of rest. There was still hope. In the morning the coolies were in good condition, and the weather was still clear. But by evening clouds had gathered all around the horizon, and nine of the twelve coolies came to report themselves too sick to go on. The other three announced

that they were tired of the mountain, and also refused to go farther.

During the night it started snowing, and continued all the next day. The men said that they had never seen snow accumulate so fast. In a previous eight-day storm, less had fallen than came in this one night and day. They said it was almost uncanny, it seemed so outside the natural course of things. As it piled up deeper and deeper, all hope vanished, and in the evening they decided finally that they must give up and go down. This meant, among other things, the complete abandonment of the three higher camps, with much valuable equipment, including the three tents, sleeping bags, stoves, provisions, personal belongings, a valuable camera, with some films already exposed, and, most important of all, an altimeter lent by the Meteorological Institute of Prussia. But to recover these things was impossible.

Next morning the men wondered if they would even get down safely. They were plowing now in snow reaching anywhere from their waists to their necks. The coolies, following the three sahibs, who took turns breaking trail, walked in a trench, and if they stepped outside the hardened foot prints, fell and floundered helplessly in the deep softness, until assisted to their feet. The sahibs, as they led, often on the steep slopes started small avalanches, the limited size of which fortunately prevented them burying the men or carrying them into crevasses. There must be frequent stops to take off boots and socks and rub feet, which kept freezing. Between Camps II and I, when, after all the efforts and dangers of the descent, they seemed almost to have reached safety, Wiessner had the narrowest escape of the summer. He was leading along a serac beside a crevasse, when the whole side of the serac fell away from under his feet, and he vanished into the crevasse among a shower of ice blocks and huge icicles. He fell about fifty or sixty feet, and Herron, the second man, was only able to brake him a little toward the end. He was stunned by being hit by some of the ice blocks, but fortunately the largest missed him, and though badly bruised and with a very painful right arm, he cut his way up the crevasse out from under an overhang, to a small shelf above. From there the others were able to help him to the top. After a short rest they went on.

Although the attack had to be abandoned because of the winter conditions, the climbers, even in Camp IV, had decided to make

another attempt next year. Merkl must hurry home, but Herron and Wiessner definitely made all arrangements. They talked with the Kashmir government, which seemed very friendly to the suggestion, and we went to Darjeeling to engage Bhotia and Sherpa coolies, as the Hunzas had been found so completely unsatisfactory for high altitude work. Good hopes of success were entertained.

But the situation in Germany and Herron's unfortunate death on the way home have prevented these plans from being carried out, and the next attack on Nanga Parbat is indefinitely postponed.

Nanga Parbat in Retrospect

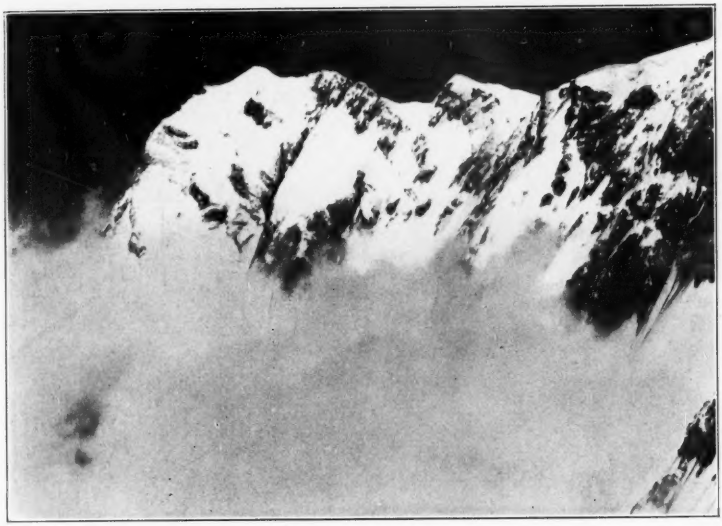
FRITZ WIESSNER

THE partial failure of the Nanga Parbat Expedition, which had started with such high hopes, raises the question as to what were the causes that prevented the party from reaching the summit, and what are the possibilities for the success of a second attempt.

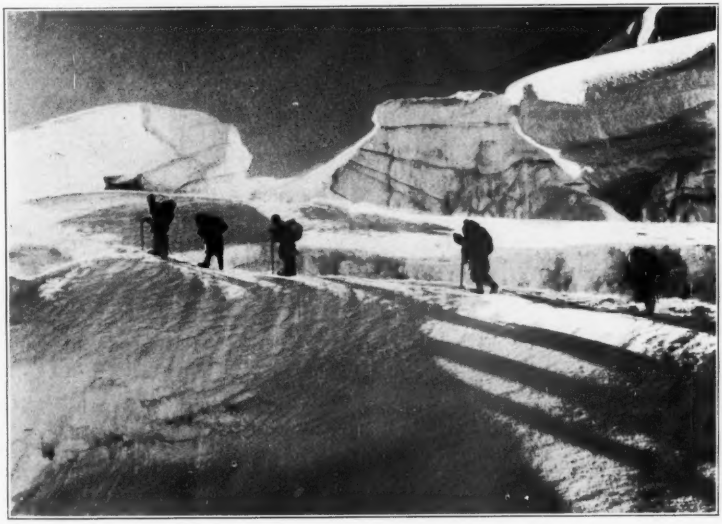
It has been asserted that the attack on the mountain was started too late in the season, but this was not the case, because we did not lose any time in reconnaissance. It was known to us that it was not feasible to attack the mountain from the south, and that consequently we would have to go along the whole Nanga Parbat massif on its north side. We had allowed two weeks for this trip in our plans and consequently lost no time on this account.

Nanga Parbat is situated outside of the area of the monsoon and farther north than the high summits of the Eastern Himalayas. Like the nearby Karakoram it shares the climate of the great central Asiatic desert belt. The last remnant of the moist monsoon is turned back by the south side of Nanga Parbat, where the highest and most savage mountain walls of the earth fall 15,000 feet from icy summits to subtropical valleys. Winter reigns long on the northern slopes. Only in June when the sun burns strongly in the desert canyon of the Indus, does the snow-line creep higher and higher in the foothills. The tremendous masses of winter snow settle slowly, and only then does it become possible to make progress up the mountain.

By the 23rd of June we were gradually working our way up the green Tatto Valley toward Rakiot glacier with a caravan of about ninety coolies. We started with more than two hundred from Astor, but over a hundred dropped out because they were afraid to go farther toward the mountain. As our caravan comprised over two hundred loads, we had to make two or three trips between each camp, and the members of the expedition had to organize in several groups to guard these transports. On one of those trips seven bags containing twenty-five mountain kits for use by coolies at high altitudes were stolen, probably by natives during the night. This theft endangered the success of the expedition before starting the climb, as we could only equip nine porters

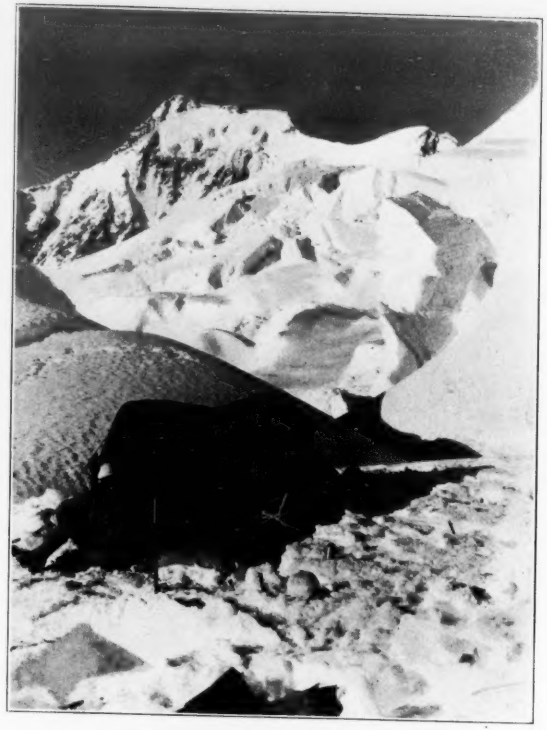


SUMMIT OF NANGA PARBAT FROM RAKIOT RIDGE



UPPER RAKIOT BASIN NEAR CAMP IV

ICE FALL NEAR CAMP II



HIGHEST CHONGRA PEAK FROM CAMP III
Route traverses broken ice in center

for high-altitude work, instead of the thirty we had originally planned to use in the attack. On account of this small number of coolies, the establishment of the higher camps was much retarded, the climbers had to carry heavier loads, and energy, strength and time were thereby wasted.

The mountain giants of the Himalayas cannot be conquered in one or two days like the mountains of the Alps. As in the case of Arctic expeditions, the camps must be carefully established to serve both as supply depots and as shelters in case of a sudden storm. The decreasing amount of oxygen in the air makes long days' journeys impossible, and heavy packs can no longer be carried. The loads of the coolies have to be reduced as the altitude increases. Above 20,000 feet, forty pounds make a good load. A climb of 3,000 feet a day with a light load is possible between 20,000 and 23,000 feet, but farther up, half as much is considered good. High camps can be pushed ahead but slowly, since food, tents, blankets, sleeping bags and other equipment must be carried up from the base camp, and certain reserves have to be kept in every camp. Only when this work is completed—the highest camp established, and the climbers able to view the further ascent or judge its possibilities—only then, can the final attack be made, the climbers carrying merely the essentials for the last bivouacs.

We had hoped to obtain high-altitude porters from the Darjeeling district where previous Himalayan expeditions had obtained very satisfactory coolies. But, as it happened, the best of these men had already been employed by Hugh Ruttledge, the leader of the 1933 Mt. Everest Expedition, for his Nanda Devi project, and by the Swiss, Marcel Kurz, who was engaged in topographical work in the Himalayas. So we were forced to fall back on native Kashmir coolies. The only local tribe that was recommended to us as likely material for high mountaineering were the Hunzas. They were strong, tall men of the Aryan race, who had lived in high valleys between the Karakorum and Pamirs for thousands of years, while the other branches of the race were sweeping southward to India and westward to Europe. Their chieftain, the Mir of Hunza, at the request of the Political Agent of Gilgit, Major Gillan, had sent us thirty coolies and a headman. At first we were satisfied with the performance of these coolies, but as we went higher they became mountain sick and lost their nerve. Above 21,000 feet they were of no use whatever.

In spite of these circumstances, and in spite of a misunderstanding through which nine days of finest weather had been lost in a reconnoitering trip, we were able to establish Camp VII at a height of 23,200 feet on the 29th of July. The first ascent of Rakiot Peak was made during this reconnaissance but it really proved unnecessary. I myself feel that it may have cost us Nanga Parbat.

No sooner had we established Camp VII than we encountered another setback. The support party was unable to keep contact with the advance party because of mountain sickness among the coolies. The bad weather which set in, and the fact of the advance party finding itself with insufficient food and equipment to withstand a long period of stormy weather, forced our retreat. On our way down we met the support party at Camp V, but by then it was out of the question to renew the attack. The fresh snow and danger of avalanches in the most difficult part of our climb, the part between Camp V (20,800 ft.) and Camp VI (22,000 ft.), made the return trip to Camp VI an unjustifiable risk. Camp V, located on a steep slope, had been excavated in the snow under a bergschrund to protect it from small avalanches. It was not suitable for a long stay. Consequently the combined party went down to Camp IV, our well-equipped main base, situated on the upper plateau of Rakiot glacier, where we could wait in security until the bad weather had passed.

On August 20th we were finally obliged to go down to the base camp after a stay of five weeks at an altitude between 20,000 and 23,000 feet, surrounded by nothing but ice and snow. We found it a great relief and an immediate benefit to our physical condition, to sleep again on a green meadow, to eat fresh food and breathe air with sufficient oxygen. When the weather had improved and the sun had melted some of the new snow on the glaciers, we started on the 28th of August for the last attack. New equipment had arrived from Srinagar in the meantime so we were able to take twelve coolies. It was a hard battle plowing through the new snow even between Camps II and III. On the steep slopes beneath Camp IV the new snow had not melted at all, although the sun had been shining for days. We forced our way upward, often up to our necks in powdery snow. Although we were in prime condition and climbed as fast as possible, twice the time was required to reach these camps as compared with our earlier effort. The snow stayed powdery, the rays of the

sun had lost their strength, the steep slopes in higher altitudes had become bottomless with soft snow, and avalanches were forming everywhere. When Camp IV was reached, fresh snow fell again—winter had set in.

Real technical difficulties on our route were few. There was only one short stretch which would be called quite difficult in the Alps, and this was between Camps V and VI. Here we had to traverse very steep and icy slopes at the lower end of the northwest ridge of Rakiot Peak in order to enter a large steep basin which leads to the main ridge between Rakiot Peak and Nanga Parbat. We had to overcome a difference in altitude of about 2,000 feet with very bad snow conditions from the point where we entered this basin to its end on the main ridge. We established Camp VI in about the middle of this basin under a bergschrund to protect the tent from the soft powdery snow that came from above. The basin had its steepest part 500 feet above Camp VI, and we were nearly stopped there by bottomless snow, but after excessive exertion we finally worked through and reached the ridge. Our track had the character of a deep ditch which was easy to follow later when the snow had become hard.

The real difficulty on our climb was to plan the route up the glacier so that we would be safe from avalanches and falling seracs. Although all of us were experienced climbers and had made difficult first ascents in the Alps, only two judged correctly from the beginning as to where the route should be placed in order to reach the main ridge. On our route up the glacier to its upper basin, we encountered many difficult ice-falls which required all of our experience and resourcefulness in icecraft.

We were defeated but not discouraged. We have not given up. We hope to be back on Nanga Parbat. We are certain that it can be climbed—with just a little more luck and the experience we have gained. The main problem—to find a through route, possible for coolies, to the main ridge between Rakiot Peak and Nanga Parbat—was solved more easily and more directly than we had expected. From this point on the ridge, we could view clearly the whole ascent to the summit—a snow ridge, not steep, leading to the highest peak. Objective dangers and technical difficulties are left behind once this point is reached. From here to the summit is merely a question of ability to climb at high altitude. Two more camps may be necessary for this final stretch.

Mt. McKinley, South and North Peaks, 1932

A. D. LINDLEY

ALTHOUGH a first ascent is quite properly regarded as a supreme prize for the climber, a mountain often possesses such a historical background and such an imposing stature as to make it a worthy objective for an expedition, even though it has been climbed previously.[1] We knew that the south peak of McKinley had most certainly been climbed, once very nearly and once completely, and that the north peak had probably been ascended. But still it seemed to be so perfectly adapted to a party without great experience in the technique of high mountaineering, so easy to approach, and so commanding in height, that we became very eager to attempt it. Besides, ought not the two thermometers, left by the two previous parties, to be recovered and read in the interests of seeing just how cold it could get on the top of McKinley in winter? Also, we were very fond of skiing and our experience had taught us that when skis could be used on a mountain, climbing was easier and safer with their help. We were certain that we could use skis on the Muldrow glacier to its head. We thought that we might use them on the upper or Harper glacier, fifteen thousand to eighteen thousand feet in elevation. All in all, the set-up seemed perfectly adapted for our party.

Trouble was anticipated with that part of the central northeastern ridge, or Karstens Ridge, which is a necessary link between the Muldrow and the Harper glaciers. It had taken Stuck's party three weeks to cut a trail up it after it had been shattered by the great earthquake of 1912 at the time of the Mount Katmai eruption. It seemed important to ascertain whether or not this ridge had smoothed out sufficiently in the nineteen ensuing years since Stuck's climb to make it again the "steep but practical snow

---

[1] Since the admirable book written by Mr. Belmore Browne, describing his several attempts on McKinley, was at once the inspiration of and the model for our own efforts, it is hardly necessary to describe the history and topography of Mount McKinley here. We also read with great care Archdeacon Stuck's book "The Ascent of Denali," so we felt that we knew the mountain pretty well before we had seen it.

[For an outline of the mountaineering history of Mount McKinley, see page 121.—*Ed.*]

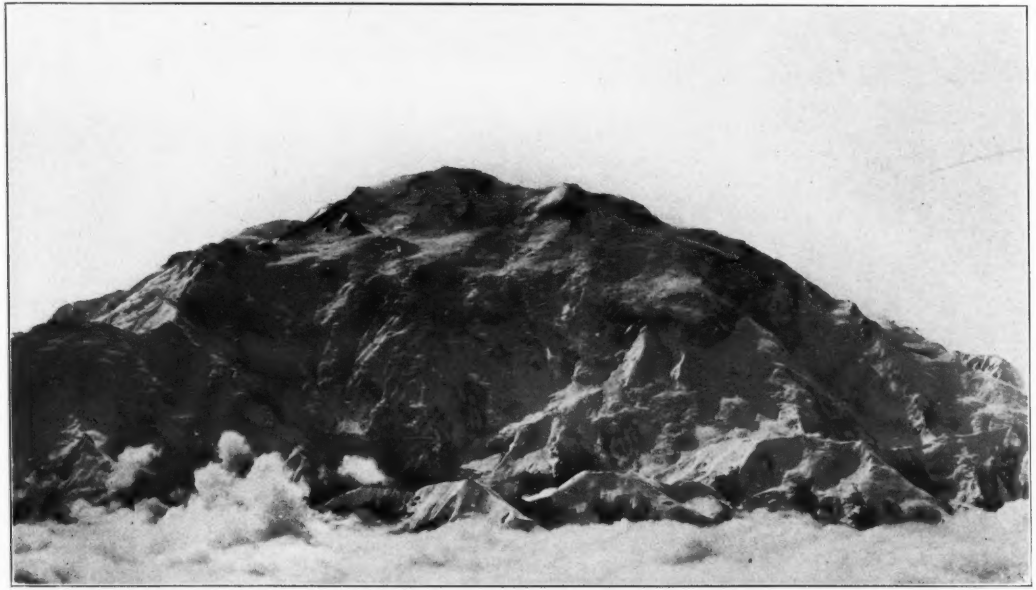


Photo Henry S. Hall, Jr.

WEST FACE OF MT. McKINLEY FROM A PLANE AT 10,500 FT.

slope" that Messrs. Browne, Parker, and LaVoy found. In August of 1931 an airplane was utilized to fly close to and at an equal height with this part of the ridge, and a look through the binoculars convinced us that it had indeed smoothed out considerably since 1913. So when it was found that Superintendent Harry Liek of McKinley National Park and Ranger Grant Pearson wished to join the party, our plans were made definite.

We tried to determine fairly accurately just which was the best month of the year to start the expedition. Pearson, having lived at the base of the mountain for some years, advocated a start early in March, saying that one could not be sure of clear weather after the first of May. The Browne party experienced good weather in April on the Muldrow glacier and in May at base camp, but in their final attempt in June had very bad weather. The Stuck party had good weather in the early part of May but much snow and wind in the latter part. We aimed to hit the mean between winter cold and summer storms and determined on a start about the first of April. So on April 4, the party set out from headquarters at McKinley Park on the Alaska railroad for the mountain one hundred miles distant. As winter traveling conditions still continued, three dog teams were utilized to transport supplies and outfit. Three more rangers at the Park volunteered to drive the teams and bring them back when they had done their work. It was an arrangement that worked out perfectly.

Our base camp on Cache Creek, a tributary of the Clearwater, was placed within a few yards of the old camp site of the Browne party, and we made our trail on up the valley to the same pass that the other parties had used to reach the Muldrow glacier. This fortunate break in the northerly wall of the glacier gives an access to it only ten miles from its head and thus obviates the necessity of a long trek up the lower twenty-five miles of ice.

Our experience on the glacier was much the same as that of the preceding parties. We took about the same length of time, camped in nearly the same places as the Browne party had, and our trail followed in general the route they had discovered. The first ice-fall was passed to the left close under the main wall of Karstens Ridge; then the trail crossed over to wind through some large crevasses, and then back again to the ridge side to get up the big ice-fall by a steep gully. Above the big ice-fall,

the trail wound around through crevasses up to the head of the glacier, and though the surface appeared quite innocent, it was on this part that we found the concealed crevasses probably the most dangerous of all. We were assisted by perfect weather, a firm crust on the snow, and no fresh snowfalls while we were on the glacier. Thus in one week, having made two intermediate camps, we were consolidated at the head of the glacier with our own outfit of 1,200 pounds and 800 pounds of cosmic ray apparatus which we had brought up at the request of the late Allen Carpe.

As anticipated, and as has been the experience of all who have used skis while traveling on glaciers, our skis proved of very great assistance because they lessened considerably the danger in crossing snow bridges over crevasses, and because they greatly increased the range of reconnaissance trips by enabling us to run home quite rapidly once we had sounded out a safe trail.

On Wednesday, April 20th, our dog teams left us to return to headquarters while traveling conditions were still practicable; the remainder of our trip was to be made without their assistance. The part of the central northeast ridge, or Karstens Ridge, up which we now had to climb for four thousand feet to reach the upper glacier, did not at first sight seem very formidable. An easy snow slope up to the col, five hundred feet above our camp, was climbed continually on skis, and the run down to camp made excellent sport. But above the col, all the way to the Grand Basin, the ridge was either so sharp or the snow slopes which we traversed so steep that skis were out of the question; it was a matter for crampons and step-cutting. We did not, however, use the rope on the ridge at all, except in one place a little over halfway up where we found it advisable to fix a rope as a hand-rail to be used in packing up.

The ridge was an unbroken snow crest for a thousand feet or more. We dug our trail either on the crest or just below it to avoid cornices, without difficulty. But a short distance above our halfway camp on the ridge, which we pitched on about the same site that was used by the other parties, we came to a spot where a small hanging glacier had slipped down in the old earthquake of 1912. Here we found it necessary to leave the crest of the ridge and traverse the steep snow slope left by the avalanche to some rocks quite near the big ice-fall coming down from the

upper glacier. The last part of this traverse was around an ice corner and then up a steep patch of ice just above an almost sheer drop down to the Muldrow, and it was here that we anchored the rope. This short stretch of ice work was really the only technical difficulty that we encountered in our entire climb. For above that, all the way to the Grand Basin, snow was met with again, and while it was of considerable steepness, it could not be called difficult climbing.

After our trail was dug all the way up the last steep snow slope to where it levels off into the Grand Basin, we put in a strenuous day and in two trips packed our camp outfit and remaining supplies to the entrance to the Grand Basin which Doctor Stuck named "Parker Pass." Doctor Stuck also named the Grand Basin glacier the "Harper Glacier" after the father of one of his men. There, in a hollow between the largest rocks, we found an old piece of cloth which had miraculously survived the storms of nineteen years, and in a crack on the west side of the largest rock we located immediately Doctor Stuck's thermometer. We were interested to note that the recording needle of this government alcohol thermometer was way down in the bulb and that thus a temperature lower than the minimum range of the thermometer, 95 degrees below zero Fahrenheit, might have been recorded, but we were inclined to be skeptical of the accuracy of the thermometer. However, we were glad to find the record of at least one of our predecessors on the mountain.

The next few days things moved rather rapidly. While digging steps on the ridge one day we thought that we heard an airplane motor at some distance to the north and believed that it must be the Carpe party landing on the level part of the glacier by McGonogill Pass where we had come on to it. And the day after we were camped in the upper glacier we were certain that we saw way below a fresh trail in the new snow, following our old route up the Muldrow. Two of us went to the top of the ridge to look down, and there we saw the two tents pitched at our old camp site, showing that Carpe and Koven had arrived and found their cache. That same day we were startled to see a red airplane come up the glacier, circle around over the camp site, and drop bundle after bundle to them.[2] We had amused our-

[2] Mr. E. P. Beckwith, whose article appears elsewhere herein, was a passenger in this plane.—*Ed.*

selves by sending a tentative signal arrangement to Alaska Airways, in case they should be flying over the mountain, to let them know the precise day on which we thought we would be on the South Peak. Accordingly we rushed around to pull out sleeping bags to make the signal, but the plane stuck strictly to its business of dropping supplies and, once through, it went back down the glacier without coming up to our altitude.

We experienced some bad weather at this stretch and even found it necessary to move our camp out of Parker Pass because of the wind howling down through the gap. And then, after we had moved down to the lower shelf of the upper glacier, we had to waste two days waiting for the weather to clear. But after that we had luck again, and one day we packed up light loads and explored the glacier to our next camp site. It was easy going up the upper glacier. Skis were of no use, as we found after one trial, but the hard-crusted snow gave perfect footing for crampons, and it was largely just walking uphill. So, after climbing two ice-falls above our camp site at fifteen thousand feet, we thought we were high enough for our last camp and dumped our loads, and the following day we moved everything else up in one heavy load. We believed that we were at the same level of about seventeen thousand feet where the Browne party had made their last camp, and one ice-fall below that of the Stuck party. But we were fed up with packing and wished to have a shot at the summit without moving camp again.

The cold was quite severe at this highest camp and fully bore out the accounts of the other parties. As soon as the sun swung behind the North Peak, which it did at about four o'clock in the afternoon, the thermometer visibly dropped down to twenty-five below zero and stayed there until the sun came up again about ten the next morning.

The first morning in the camp the weather cleared at about nine o'clock, so we started off for the South Peak. We gained the crest of the main south wall of the upper glacier, which is in fact a continuation of the central northeast ridge up which we had come, and went along this through easy rocks to a fairly level plateau at the base of the summit dome. This dome being hollow on its easterly facing side gives the summit ridge the form of a crescent or horseshoe. It looked an easy route up the inside of this horseshoe, and we were tempted to take it immedi-

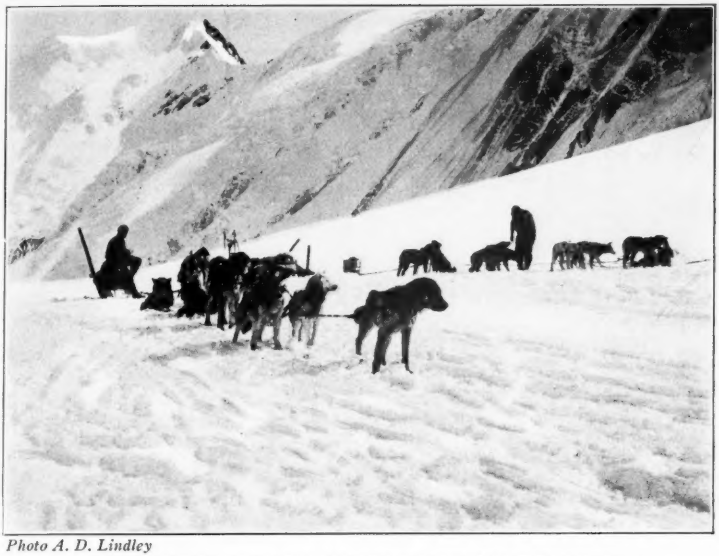


Photo A. D. Lindley

FREIGHTING SUPPLIES ON UPPER MULDROW GLACIER

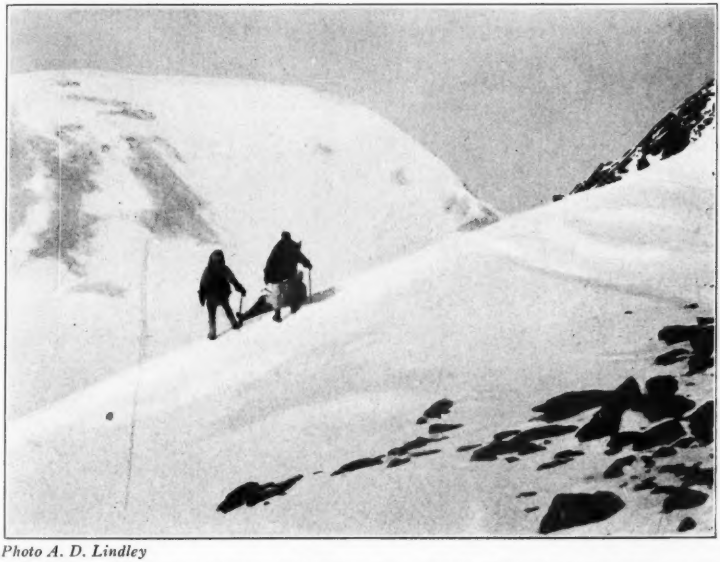


Photo A. D. Lindley

NORTH PEAK OF MT. McKINLEY (20,000 FT.) FROM SLOPES OF SOUTH PEAK

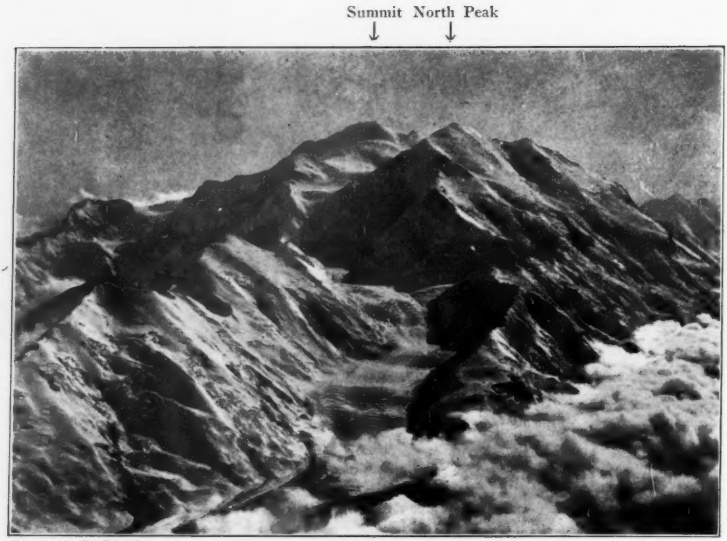


Photo A. D. Lindley

AEROPLANE VIEW OF MT. McKINLEY AND MULDROW GLACIER FROM THE NORTH (AFTERNOON)

Photo Allen Carpe

EAST FORK OF MULDROW GLACIER FROM KARSTENS RIDGE (12,500 FT.)

ately, but as we were fairly certain that the Stuck party had climbed from the westerly side of the dome, we thought that we had better have a look at that route. However, the traverse around to this west side proved too difficult, entailing as it did considerable step cutting in ice, so we retraced our steps to the route which Strom had spotted up the inside. It proved even simpler than it had looked, and we ascended in long traverses to ease the grade, without cutting a step. It was a long pull, but finally about five o'clock we gained the summit ridge only a short distance below the central highest rise, and it became apparent to us that nothing could now prevent us from gaining the top.

It was an easy walk up the summit ridge to the little pair of mounds at the top, and our objective was won. The visibility was quite good, except at the extreme horizon, and we stayed almost half an hour, but the cold was very intense and it was impossible to keep mittens off for more than a few seconds. The result was that with our three cameras—two still and one motion —we bungled everything and have nothing to show for that peak. The view had been particularly good to the south, and we were interested to look over the glaciers and peaks that lay below us, almost entirely unexplored, except for the Browne-Parker trip of 1910 on which they reached the south base of the mountain.

Coming down, we did go by the west side, for we thought that in the group of rocks which we spotted there Professor Parker must have left his thermometer. We were unable to find it, but in a little hollow on the top of the largest exposed rock in this group, less than a thousand feet below the summit, we left a bronze tube containing a pamphlet with our names and the date. We had also left a camera tripod on the summit, which I hope somebody will find some day. Below these rocks we got strung out a little, and as we were not on the rope, we were unable to check Pearson when he lost his footing. He slid almost five hundred feet over rough ice-crusted snow before he stopped. It was very nearly a serious accident, but fortunately he was not hurt. We went directly down to the Grand Basin by this west slope and did not traverse back to gain our old route. We had to detour around large crevasses, but it was all downhill and eventually, in the fading light, we gained the glacier and went on down to our camp, arriving about ten o'clock.

There we rested for two nights and a day, and then on our fourth consecutive clear day started for the North Peak. We had spotted our route while going up the South Peak and had seen a level plateau at the base of the westerly snow face of the peak. Once on that plateau it was apparent that the rest was easy. It would have been possible to reach the plateau by one of several steep snow chimneys leading up from the glacier at about our level, but we decided to play safe and go way up the glacier to its head and back up a short rocky ridge to gain the plateau.

It was very warm in the morning when we started, no wind and a brilliant sun, and for once we experienced what I believe they call in the Himalaya "glacier lassitude." Our motion pictures will show that we were not exactly "burning up" the glacier by our speed. But once started up the rock ridge to gain the plateau, we struck the southwesterly wind and our lassitude quickly went and all our windproof clothes came on. At the top of this ridge we were disappointed that we had to lose about two hundred feet of altitude to get into the plateau, but it was easy going and the top was only a question of time. The west face was another series of traverses on perfect crampon snow.

On the top we had a grand view of the South Peak looming above us across the Basin, and we scouted around trying to find the old flagpole. We observed that the easterly ridge of the peak, up which the sourdoughs must have come in 1910, was, in its upper five hundred feet, sheer ice of considerable steepness, and that the last rock ledge on the east ridge was at the base of this upper five-hundred-foot stretch. It was there that we assumed the flagpole had been placed, but we were not inclined to cut steps down this ridge to try to find it, as it was already six o'clock. So we returned by our same route and reached camp without mishap.

So far everything had gone smoothly. We had gained our objectives, and as Pearson, the hardy sourdough, had remarked, we had seen no hardship on our trip yet, as we had always had enough to eat and had been in our sleeping bags at night. But on our descent we were to have experiences which none of us particularly like to recall.

Our troubles began the very first morning, as we had to break camp and pack up in a howling storm. This delayed us and we did not begin our descent of the ridge until four o'clock.

A third of the way down, we found that our old steps were completely covered so we had to drop our packs and shovel a new trail the entire rest of the way. This meant only one person shoveling at a time and it took all night, as after each spell we had to go back up to bring down our heavy packs. There was just enough light to find our old landmarks, and we were able to get by the sharp ice corner on our former trail by shoveling out our old steps in the ice.

About five in the morning, an hour after daylight, we reached the glacier floor and made our way to the Carpe camp site. Pearson got there first and from his report we knew that something serious must have happened as there was fresh snow about the tents and nobody in them. We had found a load of grub which Carpe and Koven had packed up to our ridge camp site, and we thought a mishap might have befallen them on the ridge. We called back to Strom, who was still on the col putting on skis, and asked him to look for signs of an avalanche. He reported that he could find nothing, so we assumed the trouble must have been in the other direction. Their diaries verified this, as we found an entry noting their safe return from packing up the ridge, and also noting that the rest of their party was overdue. This last entry was on the 8th of May, and it was now the morning of the 11th.

We had a meal, put on the skis, and started down. I believe that most of my readers must be familiar with what we found: first, Koven's body, where he had died in a vain effort to get back to camp after being severely injured, and then the crevasse, with the signs around it indicating that it was the scene of the disaster. Many times since we found the crevasse, I have regretted not taking the chance of approaching the lip and looking down to make certain that Carpe was in there; but at other times I believe we acted correctly when on the scene. We knew that there was no possibility of Carpe's being alive, from the length of time that had elapsed. We called and there was no answer. It was apparent that the lip of the crevasse had already broken away with one of those who had perished, and although we had a rope, the party was not in condition to risk one of its members falling in when there was no possibility of saving a life. I remember that we discussed the probable chances of a look over the edge and I, being last man on the rope, started back, but that

when the others called that it was a great risk and a useless one, I was considerably relieved to give it up.

A short time previously, while two of us were pulling Koven's body on a sled with our only rope, Pearson, on snowshoes behind and unroped, had broken through and dropped a full forty feet in a crevasse. Fortunately, his big pack wedged him in and he went no deeper. We got him out with some difficulty, but all of us were a little shaken by the accident.

We decided that having only one rope, it was impossible to attempt to bring down the body, so we left it wrapped in a tent and marked with an upright sled, and continued on our way.

We went on through the night, trying to locate our old route, and Strom performed a most remarkable feat of trail finding. At times the glacier looked completely different because of the new snow and dim light, but we got down without serious mishap, although each of us broke through at least once. At three in the morning we found Messrs. Beckwith and Olton in their camp on McGonogill Pass and reported the tragedy. Mr. Beckwith was ill and wished to remain until an airplane could be sent out for him. Mr. Spadavecchia had gone out to try to find a plane, and we were to observe his tracks to see which way he had gone. So we went on down the pass, to reach base camp and the luxury of a bed on dry ground after just a month on the mountain. While we rested the next day in the warmth of early spring on the lowlands, we all had the feeling that we were fortunate indeed to be back down off the mountain alive, when the others had had such a tragic end.

The sequel of the safe return of Mr. Beckwith by airplane and Mr. Spadavecchia and Mr. Olton by foot, and the recovery of Koven's body by Messrs. LaVoy, Andy Taylor, and Grant Pearson in July of this year is probably known to you. Thus another chapter has been added to the history of Mount McKinley.

The Mt. McKinley Cosmic Ray Expedition, 1932

EDWARD P. BECKWITH

IN looking backward to the spring of 1932 it is hard to imagine a more interesting proposal than that of Allen Carpe to join his expedition for measuring cosmic rays, which included a flight to Mt. McKinley from the nearest base in Alaska. Entirely aside from climbing activities, which were naturally a part of the program, there were many aspects of this trip which would appeal to any lover of unsolved problems.

First of all came the cosmic rays themselves, an emanation apparently from space which has recently held the attention of the scientific world. Next came our plan of landing on the white slopes of Mt. McKinley in a plane fitted with skis and loaded with complete equipment and supplies. It was the first time such a landing had been attempted and it was by no means certain of accomplishment. If successful the plane would return to Fairbanks, leaving us isolated on McKinley for perhaps a month, which would allow two weeks for observations and two for climbing. Then a hike of thirty-five miles to a ranger's tent where the plane, this time equipped with pontoons, could be summoned by telephone to land on a nearby lake and take the party back to Fairbanks, 150 miles distant.

Alaska had been designated by Professor Arthur H. Compton of Chicago University as an important location in his world-wide plan for cosmic ray observations on account of that country's proximity to the north magnetic pole, the influence of which was expected to throw some light on their nature. The eleven thousand feet or more of height attainable on Mt. McKinley was also important on account of the increased strength of the rays with altitude.

The party consisted of five members, of which Allen Carpe, Theodore Koven and I constituted the first unit. We planned to fly to McKinley from the nearest base from which a plane could take off on skis, and would be joined later, on a second flight to the mountain, by Nicholas Spadavecchia and Percy T. Olton, Jr., who were coming by the next steamer.

In many ways Carpe was an ideal leader of such an expedition. His splendid mountaineering achievements in Alaska gave him a knowledge of climbing conditions which was invaluable, while his experience in electrical research especially fitted him for the scientific work. Koven was much younger, of rather limited mountaineering experience, but filled with enthusiasm at the prospect of climbing McKinley, a mountain which he had always had in mind since he was ten years of age. His knowledge of it, through the literature, was more complete, I think, than that of any other member of the party.

We were assisted in transporting our 800 pounds of scientific equipment by the Liek-Lindley party, who were already well advanced in their attempt to climb the mountain. Earlier in the year they had agreed to transport this considerable load with their own supplies by dog-team to the head of the Muldrow glacier, the prospective site for our observations, and they had done this in March, while there was still plenty of snow on the level. The instruments were now cached on the glacier awaiting our arrival.

We were aware that a plane equipped with wheels could not land on any of the glacial slopes of McKinley and that skis must replace them. It was necessary therefore to select a starting base on a frozen river, lake, or stretch of snow.

Carpe was naturally anxious to land at as high an altitude as possible on McKinley. The Alaskan pilots informed us that a landing at 11,000 feet was out of the question on account of the excessive ground speed required at that altitude. This was estimated at about one hundred miles per hour, and would make taking off especially hazardous even under the best conditions. After obtaining their views, we felt that we would be well satisfied with an altitude of 6,000 feet or less. However, they were not very encouraging about the possibility of landing on any part of the mountain.

It was arranged that Joe Crosson, an Alaskan airman of long experience, should pilot the plane, and he agreed to meet us with the plane at any point selected where the ice or snow was suitable for a take off. Nenana, within one hundred miles of the mountain, seemed the most promising base, since ice on the Tanana River still held, although it was fast melting and might go out at any time. In fact, we were met at the outset by difficult

Photo E. P. Beckwith

THEODORE KOVEN (LEFT) AND ALLEN CARPE AT NENANA JUST BEFORE THE FLIGHT TO MT. McKINLEY

Photo E. P. Beckwith

ALLEN CARPE, APRIL, 1932

Photo E. P. Beckwith

MULDROW GLACIER FROM PLANE NEAR BASE CAMP

Photo E. P. Beckwith

PARTY UNLOADING PLANE AT BASE CAMP

First landing on the Muldrow Glacier

seasonal conditions since the ice on lakes and rivers was breaking up earlier than usual.

FIRST FLIGHT TO MT. MC KINLEY

My diary describes this as follows:

April 24th—Nenana. We put up at the "Southern Hotel," a frame building similar to those in small western towns, and transferred our considerable amount of equipment from the station. We then began selecting necessities for our first flight to the mountain, scheduled for early next day.

Johnson, manager of Alaskan Airways, promised us, over one of the two telephones in Nenana, that he would have the plane on the river by nine next morning. He still gave little encouragement to our plan of landing on the Muldrow glacier but agreed to leave it entirely to the discretion of the pilot after a careful examination from the air.

April 25th—Nenana to Mt. McKinley. We were up at six and the early light at this latitude made it seem much later. After breakfast, during which Koven was continually going to the window thinking he heard the plane coming, we transferred everything to the grocery to be weighed so as not to exceed the plane's capacity. Total weight was sixty pounds too great. Carpe wanted to know why my extra sleeping bag weighed twenty pounds instead of twelve, and I had to admit there was an extra quilt in it. He eliminated both the bag and quilt. Discarding other things brought the weight to the required 1,200 pounds, which included our own weights.

Nine o'clock and no plane. Carpe was getting distinctly disturbed and began to call it a day lost. Telephoning Fairbanks again, Johnson asked that we be patient as the plane had injured a ski in trying to take off on soft snow (the weather was quite warm and temperature well above freezing).

The plane finally landed on the river, and I secured good movies of Crosson greeting Carpe and Koven. He was a strong-looking Alaskan, weighing over 200 pounds, and seemed unconcerned at the prospect of attempting to land on the untried slopes of McKinley.

The plane was an enclosed, single-motored, Fairchild monoplane of four hundred and fifty horse power. With all baggage on board we were at such close quarters that there was hardly room to use my movie camera.

We took off at about eleven and flew toward the distant mountains. The country below was completely snow covered and flat for a long distance. There was no sign of game or life of any kind on the white stretches of snow which were broken by irregular lines of evergreens. There was little to photograph

until we had flown for three-quarters of an hour and began to approach the mountains; then there was a great deal.

The summit of McKinley was in clouds and flying at 7,000 feet we seemed far below it. On one side were seas of peaks, unnamed and even the valleys unexplored, while on the other, the white plains reached to the horizon.

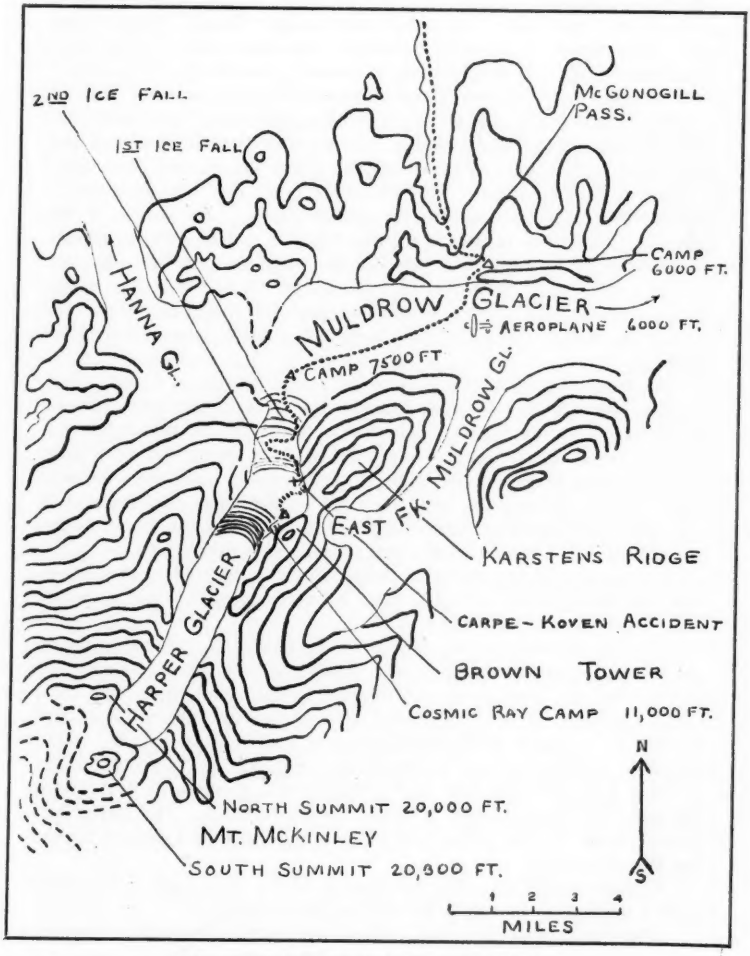
Crosson turned the plane sharply toward the mountain and flew over a ridge, bringing the Muldrow glacier just below us, that is, the upper part, as it is some forty miles long. We flew back and forth about eight hundred feet above it, examining the surface carefully. It looked smooth for several miles. After considerable conversation with Carpe, which I could not hear above the noise of the motor, Crosson made his decision, apparently quickly, and dropped the plane toward the surface, landing with no difficulty whatever on about the middle of the glacier. The altitude measured slightly over six thousand feet, which was about the best we had hoped for. Carpe was delighted and shook hands with Crosson, who took it much as a matter of course and lit a cigar before leaving the plane.

The mountain above was partly covered with clouds but the air was clear at the time we landed. The glacier was perhaps a mile wide with a high ridge on one side and a low one on the other.

We immediately began to unload the plane. The time required was short, but it was enough to effect a complete change in weather conditions. Clouds descended from the mountain and a wind came up across the glacier which sent some of our lighter equipment on a journey. With it came blinding, drifting snow, not dry and powdery, but just at the point of freezing. It clung to every part of our baggage and melted on it as the baggage was warm from the plane. It seemed to get into every part of the equipment, cameras, duffle bags slightly open, and where there was no opening the wind made one.

Crosson was seated in the empty plane and at his direction we wound up the starter. With no good-byes he disappeared in the whirling snow up the glacier. It seemed a long time before he left the ice, which was not remarkable since the required speed at this altitude was seventy miles an hour, but we saw that he did get into the air. We waited to hear him overhead as he would naturally circle and fly back. There was no sound but the blowing wind and we concluded he had probably crashed.

By this time we were all on skis and it was a pleasant feeling to be on them on a good snow surface after so much physical inactivity. I know that I enjoyed chasing some of our equipment over the glacier. Carpe suggested that on account of my greater experience with skis, I go with Koven to look for the plane, but I thought it better to stay and get some of the snow out of the cameras. Carpe and Koven started up the glacier while I collected



NORTHERN SLOPES OF MOUNT McKINLEY
Sketch by E. P. Beckwith from United States Reconnaissance Map

our equipment and piled it up so that everything would be protected as much as possible. I then started in the same direction and after some time saw them returning. Since Crosson was not with them, I thought he might be dead since if he were wounded, only one would have returned.

As they approached, Carpe shouted that everything was all right. They could see no sign of the plane and had concluded that Crosson had flown over a low part of the ridge ahead and was well on his way. So we put the plane out of our minds and turned to making camp. Our efforts to erect the tent were finally successful under protection of an ice wall at the edge of the glacier. We used one of Carpe's skis for a tent pole since the metal pole broke from the force of the wind on our first attempt.

We then began transferring our equipment to the tent. It was only necessary to take a duffle bag and let the wind blow you along on skis. Coming back without a load was much more difficult.

Approaching the tent on one of these journeys, I saw three figures instead of two and thought the extra man must be one of the Liek-Lindley party, which was then on the mountain. It turned out to be Crosson. He was on snowshoes and had come several miles after leaving the plane, which he said was undamaged. He had been unable to rise above the ridge and had made an emergency landing, later folding the wings of the plane alone, a difficult job for one man even under calm conditions.

Crosson was the same as usual—calm and matter-of-course. He had brought no sleeping bag so as to leave all the room in the plane for our equipment.

We all sat in the big tent and discussed the situation while we cooked supper over Koven's small gasoline stove, heating up canned beans, which were excellent. I suggested that I fly back with Crosson, if we succeeded in getting the plane free, and return in a week with Spadavecchia and Olton. This would make it possible for me to get a new tent pole and look after the second load of supplies and equipment. Carpe approved and thought of many things I could do at Nenana. He agreed to leave a note for me at the tent if he and Koven had moved higher up the mountain.

Crosson wanted to take advantage of the first drop in the wind and I agreed to be ready by five next morning.

The wind was still high about my small tent which was in a more exposed position than the large one. The temperature was not low, perhaps 20° F., and I do not think went below 10° F. during the night.

April 26th—Muldrow Glacier to Nenana. The wind died down during the night and light began at 3.00 A.M. At 4.30 A.M. I decided the weather had cleared and wind subsided sufficiently to take off, so skied over to the other tent.

Clouds surrounded McKinley but there was sunlight on the high ridges and no wind. The aspect of the high snow ridges, any one of which would equal a major Alpine peak, was most beautiful. The atmosphere was perfectly still and a bird was singing intermittently from where I could not make out. We were of course far above the tree line.

No life at the large tent and I looked in to find them just waking up with the three in a combination of the two sleeping bags, the whole arrangement apparently satisfactory and comfortable.

Crosson was on snowshoes in a few moments and ready to start for the plane, which was just visible as a small red spot far up the glacier. Without thought of breakfast we all followed on skis.

The surface of the glacier was much roughened since yesterday by snow drifting into ridges and freezing. Skiing was more difficult and it required more than an hour to reach the plane. The latter was not in a good position and the skis were ice covered and frozen in the snow. I was trying to take a photograph and at the same time respond to Crosson's yell to pull the tail around as he wanted to get off as quickly as possible. I left the camera open on the ice and as Koven and I swung the tail around a blast from the propeller caught the camera and I saw it disappearing down the glacier. I recovered it with some difficulty, fortunately undamaged.

The same kind of clouds we had noticed yesterday were descending from the mountain. Finally with three of us rocking the plane by the wings and Crosson driving the propeller at full speed, the plane slowly pulled out and stopped to let me in. I did not even turn to say good-bye to Carpe and Koven.[1]

We had a rough, long ride before leaving the ice, the skis jumping from one frozen ridge to the next, and I thought surely one would break. If this should happen, we might still get off, but would have a pleasant hour or so to contemplate the probable wreckage of the plane on landing at Nenana. Finally we were safely in the air and all was clear for the flight back which was accomplished without incident.

While we took breakfast in Nenana, Crosson remarked, "I have not often had a job like that to handle," which was his way of describing twenty-four hours of constant uncertainty.

Our experience on this trip showed the serious element of risk in landing and taking off from the glacier and the necessity

[1] This was the last time that I or anyone saw them alive except for a brief glimpse from the plane on May 3rd as I dropped provisions over their 11,000-foot camp. The Liek-Lindley party were farther up the mountain and were not in touch with them at any time.

of taking full advantage of the short periods of calm and clear conditions. Very sudden changes of weather and snow surface must be expected, and while these were characteristic of all Alpine districts, they seemed to be especially accentuated on McKinley, possibly through its extreme northerly position.

The approaching break-up of the ice on the river at Nenana made it dangerous to keep the plane there more than a short time, and another base had to be adopted in preparation for the second flight to the mountain planned for a week later. Loaded with 450 pounds of additional supplies and equipment, the plane was flown from Nenana to Birch Lake, a fair-sized body of water about sixty miles from Fairbanks, where the ice was still firm. By folding the wings the plane remained there safely until we were ready to start.

THE ALASKA ICE POOL

Our concern over the condition of the ice on the Tanana River was shared by the people in Nenana, but for an entirely different reason. Nenana was the site of the great Alaska Ice Pool, which was a yearly event and was fully explained to me by one of the leading citizens. Chances in the pool, which were confined to residents of Alaskan and Yukon territory, were priced at one dollar each to cover a guess as to the exact hour and minute that the ice would start to move out of the river at Nenana. The winner received the entire pool or about $60,000.00.

The apparatus for determining the critical moment consisted of a platform in the ice surmounted by a flag to which a wire was fastened that would break under the strain when the ice moved. This stopped a chronometer at the exact time. Tickets were not sent through the mail, but were handled individually in each town.

On May 1st the ice had risen several feet and appeared about to move, although old timers at the dock thought that it might last for several days. Looking toward the river at about eleven o'clock I saw the ice moving and hurried to the water front. There was much excitement, not only about who had won the pool, but about the damage that the ice was doing to the docks. It was indeed a remarkable sight to see the ice tearing the docks to pieces like so much cardboard.

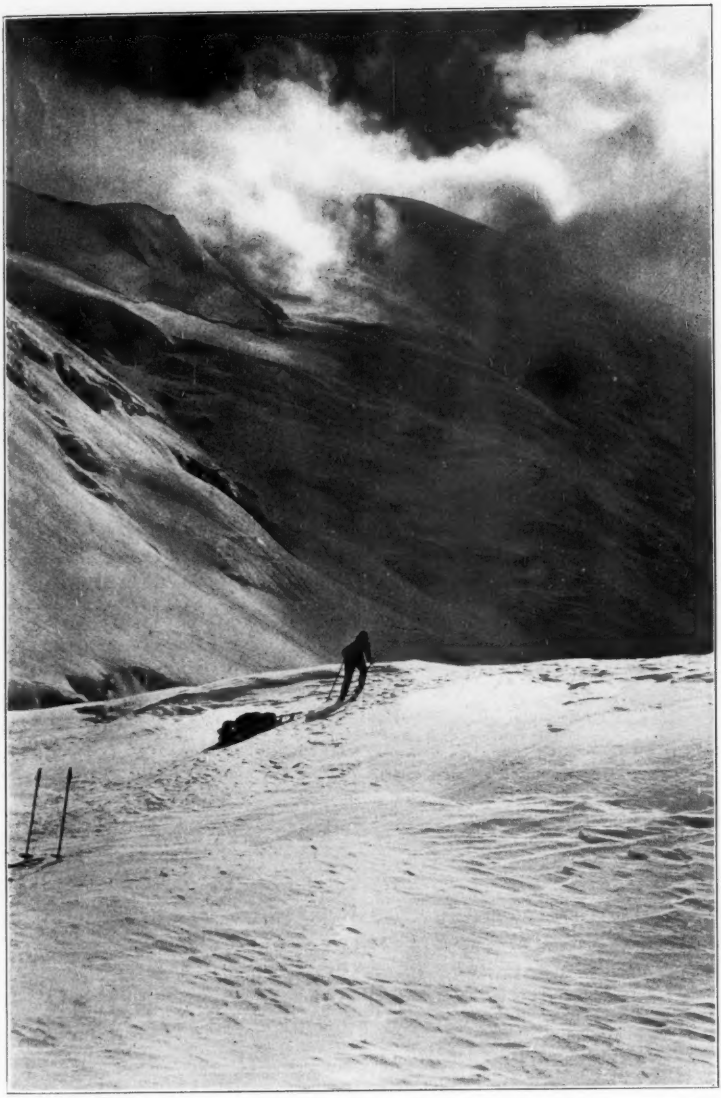


Photo Allen Carpe

KOVEN PULLING SKI SLEDGE UP MULDROW GLACIER

Photo E. P. Beckwith

BASE CAMP AT McGONOGILL PASS

Photo Allen Carpe

NORTH PEAK OF MT. McKINLEY AND MULDROW GLACIER FROM 7,000 FT. CAMP

There were four winners who had guesses on the same minute, so that the pool was divided among them. The winners were all on the coast and there was an evident air of disappointment at Nenana.

SECOND FLIGHT TO MT. MC KINLEY

On the same day that the ice broke up, Spadavecchia and Olton arrived on the weekly train from Seward. I joined them on the train so that we could continue to Fairbanks and prepare at once for the second flight to Mt. McKinley. For this flight, we decided in favor of two planes, partly to avoid further concern about the weight to be carried, but more on account of the increased safety in flying with ski-equipped planes over country that was by now free of snow. In case of a forced landing on dry ground a ski-equipped plane could land without damage, but could not take off again. With two planes, one could always mark the position of the other.

We discussed at some length the advisability of including a short-wave radio, but were prevented from taking the only one available through the necessity of guaranteeing its return. We therefore stood as at the beginning—the only possible communication with Fairbanks to be had by telephone from a ranger's tent, possibly not easy to find, and thirty-five miles from the mountain. This flight and some of our subsequent experiences were described in my diary as follows:

May 3rd—Fairbanks to Mt. McKinley. At 5:30 A.M. I had not received the expected call from Johnson and was beginning to think the prospect for the flight might be bad, when Crosson announced that everything was all right, weather good, and we could start as soon as possible. He was very anxious to get going before any wind came up. Our baggage was rushed to the field and loaded on the planes. The two small planes, this time equipped with wheels, waited on the snow-free field ready to take off. It was Olton's first air trip. Our destination was the still ice-covered Birch Lake where the wheel or ski landing gear could be used interchangeably. The big cabin Fairchild was already there, ski-equipped, and loaded with everything I had placed on board at Nenana.

It required about half an hour at Birch Lake to unfold the wings of the Fairchild and replace the wheels of the small plane with skis. I kept to the small plane for photographic reasons

and instructed Jones to give me a chance to photograph the other plane against the mountain.

The same country which we flew over the other day was now almost without snow, and the pilots were watching the ground carefully for a possible place to land on in case of a stalled motor. It was extremely cold flying in the small open plane, especially as we approached the mountains. The weather was favorable but as we neared the Alaska Range it was evident that much new snow had fallen.

There was no sign of the tents or of Carpe and Koven as we dropped toward the glacier, both planes landing without difficulty on the new snow. There was a stick in the center of the glacier with a note on it from Carpe saying he had left a letter for me at my small tent on the edge of the glacier. I found the letter buried in the snow, and it stated that they (Carpe and Koven) had gone to the head of the glacier.

I asked Crosson if he would fly over Carpe's 11,000-foot camp and let me drop some provisions and my big duffle bag. He agreed, so we loaded the plane with five boxes of supplies and I went with Crosson in the Fairchild to drop them out. We climbed to 12,000 feet and then made for the head of the glacier. I soon saw Carpe's tent with skis standing in the snow and a figure by them. Carpe or Koven waved to us. The view of the upper part of the mountain at such close range was most inspiring. All the well-known features were clearly visible. Karstens Ridge and beyond it the east fork of the Muldrow glacier, Browne Tower and the Harper glacier with the upper basin beyond. Crosson said he could see the Lieke-Lindley party above Karstens Ridge, but I was unsuccessful in making them out. We then dove for the camp and Crosson told me to wait for his word before throwing out the boxes. The door was very hard to open against the wind but I pushed a box out as Crosson said "Now!" I followed this by four others until he said "Stop!" We circled again and I threw out the duffle bag containing my sleeping equipment for use when I should reach the camp. We could see the bag as a small speck on the glacier but the boxes were light colored and not visible. With the plane flying at 150 miles per hour the landing points of the boxes were necessarily at some distance apart, but I could only hope that they would be found with the contents undamaged. We then flew back and landed on the glacier near the other plane, having been gone about half an hour and having covered about twenty-five miles of glacier. The same trip if made on foot would occupy about four days.

The planes took off with ease on the surface of new snow, which had not yet drifted, and left us to begin our life on the mountain. We found that the snow-covered tents must be moved at once, since water was coming up underneath and was eight inches deep at my tent. I emptied about a gallon of water out

of it, but the sleeping bag was dry as it was above the inflated air mattress.

We established the new camp high on the moraine near the summit of McGonogill Pass, and by 10 P.M. had everything packed from the glacier to the tents, ending the day in excellent spirits at getting well established and with the prospect of joining Carpe and Koven in a few days.

Next day, May 4th, Spadavecchia and Olton began packing supplies up the glacier as far as the foot of the first ice-fall, a distance of about four miles.

The following day, May 5th, they did the same thing, advancing to the top of the first ice-fall. It was on this trip that the dangerous nature of the upper part of the glacier was demonstrated, and the necessity of using the rope at all times. They were skirting the first ice-fall wearing crampons when a storm came up in which they lost the trail. Olton fell through into a crevasse and hung on the rope above a deep ice cavern. Spad could only just hold him and the crevasse was too wide for Olton to reach the other side with his crampons. He finally worked upward and came out on his back.

The storm was similar to the one on our first landing, and they had much difficulty in reaching camp. It was hard to see the way in the drifting snow which obliterated all tracks, and they fell continually as they were driven by the storm across the wind-blown ridges. It was ten o'clock before they reached camp. I had already spent several hours in my sleeping bag trying to hold the tent down as there was danger of its being carried away at any time.

We spent May 6th in recuperating. The weather was not good, so little was lost, and we planned to start together early next morning for the foot of the first ice-fall, taking with us the large tent and all sleeping equipment.

During the night I felt ill, although not seriously so. It was enough, however, to make me decide to remain and let the others go on ahead. I had the small tent to rest in and expected to pack up and join them in one or two days at most. I planned to reach the camp at the foot of the first ice-fall, four miles up the glacier, this lower portion being entirely safe to traverse alone since it was solid ice and contained no crevasses.

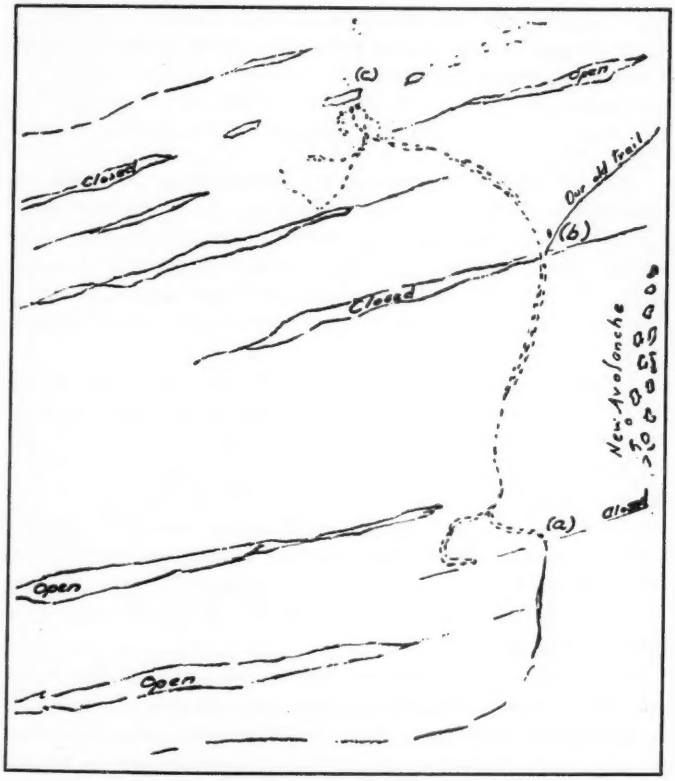
Before Spad and Olton started, we arranged that if I became worse, I was to stand up two skis in the snow, and if they saw

this signal through a glass, they were to return. Spad was concerned over my condition, but I encouraged him to go ahead and watch for the skis. We had all eaten canned chicken the night before and the others were slightly ill also. I assigned my trouble to this.

That evening, May 7th, I became much worse, with pain and fever, and reluctantly put out the skis. The climbing weather was perfect and I hated to interfere with my companions' progress. McKinley stood out clear in every detail and there was no wind. In spite of my illness I could not help but be impressed with the wonderful aspect of the mountain in the soft slanting light of a few hours after midnight.

I expected that Spad and Olton would be back by noon in response to my signal, and I frequently looked up the glacier through binoculars. Noon passed and then the afternoon. Something was wrong and I was afraid there was some quality in the blinding light which made it impossible for them to distinguish the skis. I began to consider the prospect of a failure of my signal. If they did not see the skis they would continue up the glacier and might not be back for many days. A change in the weather, which was sure to come presently, would make existence in the small tent almost impossible for one seriously ill. Drinking water had to be prepared by melting snow over a gasoline stove; the preparation of food was not a factor as I could eat none. I considered making an effort to join the others by skiing up the glacier at night, but it was too risky, as I would have to take down my signal, and might not get there.

At 8 A.M. on May 9th I was lying in the tent with my head out of the opening when I saw Olton coming over the moraine on skis. I was so glad to see him that I asked him to wait a few minutes before telling him of my illness. He said they could not see the skis through an eight-power glass, although the latter were backed by a white snow bank. He had come over for more supplies as they had concluded there was an insufficient cache at the ice-fall. Olton immediately stood his own skis up beside mine, making a wider line, and also attempted a smoke signal. These measures, combined with Olton's delay in starting back, made Spad soon follow and in a few hours we were all holding a consultation.



SKETCH DIAGRAM OF CREVASSES AND FOOTPRINTS

At scene of the accident on Muldrow Glacier
(From memory by Erling Strom)

(a) Point on trail where Koven's body was discovered.
(b) Point where body was left and where Pearson fell into crevasse.
(c) Fatal crevasse.

The first thing was to get the big tent back, an eight-hour job. When this had been accomplished, the next step was to try to reach a telephone in order to summon a plane. I was too ill to be left alone and Spad and Olton each wanted to strike out for Stony Creek, thirty-five miles away, where we understood there was a telephone in a ranger's tent.

Spad started on the afternoon of May 10th, taking with him the small tent and food for six days, making a seventy-pound

pack. Maps of the region had proved very inaccurate and Spad had to depend on his general knowledge of the country, which of course was very fragmentary.[2]

THE ACCIDENT

On May 12th, while Olton and I were waiting the results of Spadavecchia's efforts to reach a telephone, we heard voices outside our tent at two o'clock in the morning. It was the Liek-Lindley party returning after their successful ascent. A voice asked, "Anybody in the tent?" a not unnatural inquiry after the vacant tent they had just encountered at the head of the Muldrow glacier.

They first told us of their ascent of both peaks, and added that they were all very much exhausted, having been without sleep for thirty-five hours. They then tried to break the news of the accident gently by saying that they did not think that our companions would climb the mountain. Finally all the details came out and it took us some time to really grasp the facts. It was especially hard to believe that anything could have happened to Carpe, for while he was an independent climber, he was extremely careful in his own way, and there were no serious technical difficulties on the mountain.

They told of finding Koven's body a mile and a half down the trail and of their decision not to approach the crevasse and look in on account of the risk involved and because Carpe, if in the crevasse, would be beyond help.[3] They also recounted their efforts to bring Koven's body down on a sledge, and how after progressing one hundred yards the plan was interrupted by Pearson breaking through and falling forty feet into a crevasse.[4] They then left the body wrapped in a small tent and marked the spot with the sledge standing upright.

Liek and his companions soon departed from our camp for their base seven miles below the pass. We asked them to look

---

[2] We subsequently discovered that the telephone at Stony Creek was not working and that the nearest one was at East Fork, a distance of sixty miles.

[3] See page 43, *ante*.

[4] It is interesting to note that Pearson was on snowshoes when he broke through, and that he was on the well-marked trail which had been traversed many times.

for Spad and telephone for a plane for me on the way out. They had the advantage over us of knowing the country.

The circumstances attending this puzzling tragedy can never be definitely known—there were no witnesses. But something of its background can be gathered from entries in the diaries of the two men which have come back to us and picture their life on the glacier up to the time of the accident.

On May 6th, the cosmic ray apparatus had been set up and Carpe conducted observations without interruption from 10 A.M. to 6 P.M. The weather was not good according to his entry and my own record at the McGonogill Pass camp. May 7th was a fine day and the Carpe diary shows that advantage was taken of it to pack supplies up Karsten's Ridge for use in future climbing. As this is the only entry since May 4th which is more than a simple record of cosmic ray readings, I will quote it in full:

May 7. Min. 7°. Fine. Bar. 11,400 (Paulin). Took loads up ridge to 12,640 feet where we found a camp of Liek-Lindley party. They had shovelled huge steps all along but were now snowed up. A nice narrow ridge and fine views. Home in 1 hr. and soup made of fried bacon cut up in urbswurst and dried soup vegetables—excellent. Note also soup made of chicken and thickened with oatmeal and bullion cubes.

Koven's diary gave a daily account of his progress with Carpe up the Muldrow glacier from the time I left them on April 26th until May 7th, when the last entry was made.

They established a camp at the base of the first ice-fall, about four miles up the glacier from McGonogill Pass, on the evening of April 28th, having spent the two days in relaying supplies from the base camp at the pass. As the glacier slopes gently upward over these four miles from an altitude of 6,000 feet to one of 7,000 feet, this part of the journey was comparatively easy.

Although Koven notes that Carpe was suffering from a blistered heel, they were ready to start up the ice-fall on the morning of April 29th. Equipment and supplies were transported on what Koven designates as "improved ski sleds," the plan of which is clearly shown in Carpe's photographs. Camp was made that evening in a crevassed area at the base of the steep second ice-fall. No temperature below 20° F. had been recorded up to this point, and the weather was generally fair. The steep second ice-fall was negotiated on the 30th, by splitting up the loads and

making two trips, crampons being used to good advantage on the second one. It was hard work under a hot sun.

Little was accomplished on May 1st as snow fell all day. The temperature inside the tent at noon was 82° F., and perhaps this led Koven to remark that he was "spending May Day in the frozen North at 11,000 feet on Mt. McKinley."

From this camp to the head of the glacier was only one day's trip, and it was successfully accomplished on May 2nd. The entries in Koven's diary (hitherto unpublished) for this and subsequent days, up to and including May 7th, are quoted in full as follows:

Mon., May 2. A fine cold clear day. Had a bite to eat and then picked up our loads and went up to the head of the glacier. A pair of snowshoes are stuck in the snow just below the saddle in Karstens Ridge and the tracks seem to be a few days old. Found the cache and dumped our stuff. Had the finest ski run of my life back to camp, a continuous 25 min. slide through fine powder snow, interrupted by 2 setzmarks in the least excusable places. Had a little lunch, the last of our grub and gas. Then went up to the basin again, arriving at 5:30. Made camp and had some supper. Quite cold. Lots of grub now and we sure pitched in. To bed at 9:30.

Tues., May 3. Didn't wake up until 9:30 this morning. During the night heard the roar of a number of avalanches from the Harper glacier. It is nice and warm this morning, about 60° in the tent. Max and Minnie showed 15° inside last night. A few minutes after ten I thought I heard the sound of a plane. At 11:30 as we were finishing a late breakfast we again heard the sound and saw a ship approaching from down the glacier. It was Crosson's Fairchild and he circled to the east to gain altitude and suddenly appeared from alongside "Browne Tower." He cut the gun and dove right for our tent, dropped several packages from the window which landed beyond our camp. He circled around again, dove down once more and pushed a large bag and another package out of the doorway, which landed a good ways down the glacier. I set off on skis to locate the bundles and soon saw 3. Spent most of the day packing the stuff back to camp. Opening them was a good deal like Christmas Eve. There was a lot of grub, a spare tent and lots of spare clothes, also the shovel. Went to bed quite early.

Wed., May 4. Got up at 6:30. Weather was partly cloudy. Helped Allen unpack cosmic ray apparatus and then brought in rest of grub dropped by plane. After lunch packed a load of grub up into the saddle and walked up the ridge a ways. The view to the southeast was wonderful. Came down to camp and

Photo Allen Carpe

MT. McKINLEY FROM MULDROW GLACIER
North Peak in center; Summit in distance to the left

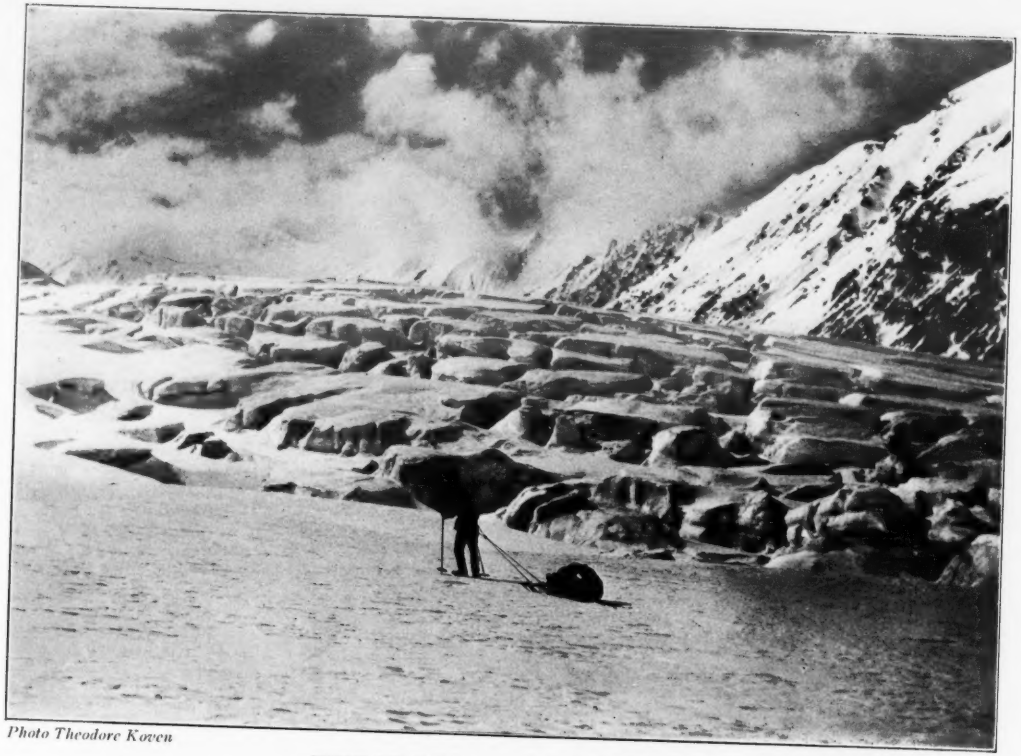


Photo Theodore Koven

FIRST ICE FALL ON MULDROW GLACIER
Allen Carpe pulling ski sled

learned how to make cosmic ray measurements. Had a big supper and went to bed at 6.

Thurs., May 5. Awoke very early as it began to blow badly. About 4:30 Allen had to get up and prop up the C. R. tent as it was sagging. From then on it kept getting worse by the minute. Soon we had to take both poles down. It seemed as though every moment everything would go roaring down the glacier. Then there would be brief intervals of calm and we could hear the wind pounding over the ridges like a locomotive blowing steam. We lay in our sleeping bags and held down the tent. During calmer spells we got the stove going and made some lunch. Then we read the almanac. About 5 it calmed down a bit and Allen set up the C. R. tent again. I went out for a while. The wind had cut the snow away from everything hard. Ski tracks were elevated several inches in the air. I wonder where the others are? Percy and Spad. It stayed calm and we turned in about 8.

Fri., May 6. Had a fine night's sleep. Woke at 6. Calm bright sunny morning. Had a fine breakfast, boiled figs and raisins, bacon and eggs. Assembled a load of food for up above. Allen continued his cosmic ray measurements. Skied down a ways to look for the boys but they were not yet past the ice-fall. Hurried back to camp as a cloud bank was coming up the glacier. It was very foggy with light snows most of the aft. Read "World Almanac" and watched cosmic ray measurements. In the early evening it suddenly dropped from 30° to 14° in about 1½ hours and then cleared. After a big supper we went to bed at 7.

Sat., May 7. Slept well as usual and awoke at 6:30. Min. temp. last night 7°. Packed a load of grub up the ridge to an elevation of 12,640′ with Allen. Here a big hollow had been dug in the ridge. We left our stuff here and descended after taking a few pictures. Arrived back in camp at 3:30. No sign of Percy and Spad yet. They ought to put in an appearance soon.

According to the entries, Carpe and Koven reached the head of the Muldrow glacier and established their final camp on the evening of May 2nd. It was therefore their first day in camp, May 3rd, when Spadavecchia, Olton and I arrived on the lower glacier, and I flew over Carpe's camp to drop provisions. Incidentally, it is interesting to learn from the diary that the boxes dropped from the plane were recovered apparently undamaged.

Koven speaks much of skiing, and he twice skied down the glacier presumably near or over the spot where the accident occurred later. On May 5th he began to wonder why we had not appeared, and on May 6th skied down the glacier some distance to find if we had reached the first ice-fall. He was alone

on this trip as Carpe, according to the latter's diary, was occupied with the instruments. On May 7th the diary stops with a final remark on our non-arrival.

The entry on May 8th in Carpe's diary shows that he resumed cosmic ray observations at 8 A.M. and continued till 10 P.M., spending a full day at the instruments.

Then came the morning of May 9th. Readings were started at 6:30 A.M., probably with the intention of putting in another full day in observations. The day was fine and warm according to my own record at the base camp. Carpe recorded a temperature of 36° F. at 6:30 A.M., an unusually high temperature for that hour. It was just the day when snow bridges over concealed crevasses might be softened. Carpe recorded that the temperature inside the tent at 6:30 A.M. was 10° F., showing a cold night followed by a rapid rise in temperature outside.

As the two sets of cosmic ray readings taken that morning required about an hour and a half, Carpe must have discontinued observations at 8 A.M. Six days had elapsed since they had notice of our arrival through my flight above their camp on May 3rd. It seems most natural, therefore, that the two should decide to descend the upper glacier to see if we had at least moved our camp to the base of the first ice-fall. The cosmic ray measurements could be readily interrupted for a day, as they had been on May 7th for packing supplies up the ridge.

Carpe arrived on the glacier with one pair of skis. These did not prove very satisfactory, and he sometimes to my knowledge made better progress on foot. On his way up the mountain, Lindley left another pair at Carpe's future camp site at the head of the Muldrow glacier. Both pairs were found by the Liek-Lindley party at the 11,000-foot camp, as well as a pair of ski-poles and Koven's ice-axe. All other skis have been accounted for except Koven's. From this it seems clear that when the accident happened, Koven was on skis, carrying ski poles and that Carpe was on foot carrying ice-axe and crampons. They were without a rope, as the only one they had was found on Karsten's Ridge. Both wore ski boots.

We come now to the actual circumstances of the tragedy. As indicated above, we can never know exactly how it happened, but it may not be amiss to suggest a plausible interpretation of the known facts.

Starting down the glacier together [5] shortly after eight o'clock on the morning of May 9th, after a run of a mile and half, Koven curved off the trail, where it bent around an avalanche fan towards the center of the glacier. His skis took him over the fatal crevasse safely, probably somewhat in advance of Carpe, as the skis would enable him to make better progress. Carpe stopped for some trivial reason, possibly to tie his shoe lace, drove in his axe and hung the crampons on them. The snow broke close to the axe and precipitated him into the depths of a huge crevasse. (Taylor and La Voy in their later search, examined many nearby whose bottoms could not be seen with an electric torch on the end of a two hundred foot line) Koven looking around and not seeing Carpe, side-stepped back to the hole on his skis, as was indicated by their tracks in the snow, and looked in. His weight broke off another section of the lip and he was precipitated into the crevasse, but landed on some obstruction not very far down. The hole in the snow bridge was about twenty-five yards long. His face was bruised and there was a small hole in his thigh, such as might have been made by the point of a ski pole, but he was not seriously injured. Some time later he managed to get out, probably only after very extreme effort, leaving his skis and poles behind, as they have not since been seen. He was found lying face downward on the glacier, two hundred and fifty yards away, towards the cosmic ray camp. Intervening footprints indicated that he had walked on both feet, staggering, and that he had fallen several times. These events undoubtedly occupied many hours and with the approach of night and low temperatures Koven, much exhausted, froze to death in his thin and torn clothing.[6]

---

[5] It seems most reasonable to assume that the two men were together. If Koven had gone down the glacier alone on the 8th and had fallen in, we are compelled to assume that he spent the night in the crevasse and that he got out *after* Carpe had perished in an attempt to help him on the morning of the 9th. The evidence all points to the fact that both fell into the same crevasse and at about the same point. The footprints and ski tracks concentrated at only one hole.

[6] The Liek-Lindley party found many footprints in the snow about the hole in the crevasse as is indicated by dots in Strom's memory sketch, and these extended as far as Koven's body. There were also ski tracks leading to the hole and beyond it, with marks of side-stepping on the farther side. All of the tracks were considerably obliterated by fresh snow. It does not seem significant that footprints were not specifically noted starting from the camp, since these may have been made much earlier in the day when the snow was hard. The previous night had been cold as noted.

In whatever way the evidence is worked out, the circumstances of the accident appear equally tragic. They stand in strong contrast to what had gone before—joyous activity among the inspiring surroundings of mountain and glacier. Life was at its best for both in these days of Arctic spring on the North's highest mountain.

RETURN FROM MT. MC KINLEY

Resuming the narrative again at our base camp at McGonogill Pass on May 14th, I had spent about a week of severe illness, and was now showing a slight improvement, which was certainly partly due to Olton, who had been getting up at all hours in zero temperature and heating up bouillon for me over a gasoline stove that was none too easy to get going. With the weather clear, we agreed that if a plane were coming it would come that day. There was doubt, however, whether the exchange of wheels for skis could be made at Birch Lake as the ice might well have melted with the rapid approach of the Alaskan spring. The day passed uneventfully, and next day the weather was unfavorable. We spent the morning in calculating how long our supplies of food would last. We decided that there was enough for a month, taking into consideration our inactive life and my small requirements. By that time, snow should have melted sufficiently to make it possible to bring in horses. We knew that some form of transportation would arrive if we waited long enough.

While we were settling ourselves for a prolonged stay at our camp on the glacier, the resourceful Alaskan Airways had managed to flood the Fairbanks aviation field by cooperation with the fire department and make it sufficiently muddy and slippery to get a small powerful plane off on skis without the aid of a frozen surface.

On the morning of the 16th I had dozed off to sleep at about eleven o'clock when Olton pushed me and shouted, "The plane!" "The plane's coming!" Olton ran out and returned immediately to tell me that the pilot had signaled recognition by waving the wings. With the unexpected arrival of the plane, I felt more capable of activity than I had thought possible, and was soon on skis sliding down to the glacier where the plane had already landed.

It was the small, powerful Stearman. Olton hurried on ahead to get the news, the important question being whether anything

Photo Allen Carpe

UPPER MULDROW GLACIER AND KARSTENS RIDGE (RIGHT), LOOKING NORTH FROM 12,500 FT.

The accident occurred in crevassed area in upper center of view

had been heard from Spad, and whether he or Liek had summoned the plane. Olton returned to meet me as I slowly approached and he looked depressed. Nothing had been heard from Spad; Liek had summoned the plane. That meant that Olton had to stay in case of Spad's return, and I left him with the assurance that I would send a plane in for him later.

Jones was the pilot and we were soon in the air, flying low over the trail to Mt. Eilson looking for Spad. New snow had obliterated all tracks, and the only life we saw was a fox or wolverine making for cover.

On arriving at Fairbanks, I found that I was sufficiently recovered to go to the hotel and help start the search for Spadavecchia. Liek, Superintendent of McKinley Park, arranged for two rangers to go in on foot, while Alaskan Airways in cooperation with the Fairbanks Fire Department again flooded the aviation field, enabling a plane to take off on skis. The plane left on the morning of May 19th with Robbins as pilot, and was expected back in five hours. In addition to hunting for Spad, he was to bring Olton back, since so much time had elapsed that it seemed unlikely Spad would return to that camp.

News of the loss of Carpe and Koven, Spadavecchia's disappearance, and my illness, had reached New York, and many telegrams came, some suggesting where to hunt for Spad and offers of funds for the purpose.

Twenty-four hours went by and Robbins had not returned, so Jones took off in a plane equipped with wheels to investigate what had happened to Robbins without landing. He carried with him a can of lamp black which could be dropped so that Robbins, if located, could write on the snow what had occurred. He found Robbins at Olton's camp with the plane on the glacier. Jones circled back and forth while Robbins wrote on the snow, "S & O SAFE AXLE BROKE." This obviously meant that Spad had returned and that they were both safe. After reading this message, Jones flew back to Fairbanks and then came back to the glacier again the same day, dropping a new axle for Robbins to use in repairing the plane.

We return now to May 19th at McGonogill Pass. Robbins landed safely on the glacier in the morning. Spad was not there and Olton prepared to take off with Robbins and fly back to Fairbanks. The plane, however, would not move under full power

and Robbins found the skis frozen to the glacier. Olton rocked the wings while Robbins ran the propeller at full speed, but without result. Continued effort on the same line only resulted in the axle breaking under the strain. Olton and Robbins therefore were forced to remain at the camp to await developments.

At ten o'clock that night, Olton heard a call which was surprisingly similar to one which he and Spad had used to signal each other. Looking out he saw Spad coming over the pass.

Spadavecchia was somewhat exhausted, although not seriously so, and was otherwise in good shape. He had been gone ten days and still had one can of food left. His plan to reach the telephone at Stony Creek by following the winding McKinley River, as the surest way, forms an interesting story. The going was painfully slow and difficult and he constantly broke through to his waist in the deep soft snow. Once he fell through the ice into the running water. He had helped out his food supply by killing porcupines with a ski pole and at one point had an interesting meeting with two wolves. When he found it impossible to reach Stony Creek he returned by the same route.

For once all the luck was with us. If Robbins had not broken an axle, Olton would have returned to Fairbanks and Spad would have found no one at the camp on his arrival. On the theory that he was on the way out, we might have searched for him many days before looking for him at the camp. Later we discussed the situation and do not know yet how it would have turned out. It is certain that we would have had many more days of anxious search, and that Spad would have had a long wait at the camp.

Robbins repaired his plane and flew back alone, leaving Spad and Olton behind, as the undercarriage was not strong enough to take off with passengers.

After Robbins' experience, Alaskan Airways were unwilling to attempt any more landings on Mt. McKinley, so Spad and Olton, in company with the two rangers sent in by Liek, hiked out the eighty miles to McKinley Park Station.

Conclusion

No one returned at once to the camp at the head of the Muldrow glacier. Late in August, Merl LaVoy, who was on the Parker-Browne party of many years ago, and Andrew Taylor,

veteran of many climbs with Carpe, went in to the camp to recover Koven's body and to try and find the crevasse into which Carpe had fallen. They found Koven's body where it had been buried in the snow by the Liek-Lindley party, but were unable to discover any trace of Carpe. Although they dug for four days they could not locate the crevasse opening nor were they even able to find the ice axe and crampons. A satisfactory search was impossible because ten feet of snow had fallen since May. Carpe's and Koven's cameras, parts of the cosmic ray instruments, and various personal effects were recovered. But most noteworthy was the discovery of four exposed film-packs belonging to Carpe. These were developed and many proved to be superlative examples of mountain photography.

The record of cosmic ray measurements covering two days, which was made by Carpe just before the accident, was forwarded to Professor Compton at Chicago University, and was pronounced of value. The scientific objective of the expedition was therefore partly carried out.[7]

In addition to this, many of our activities were of a pioneering nature, which in the future would make it an easier matter to establish a base for scientific observations at an altitude of 11,000 feet on Mt. McKinley. The problem was met of transporting heavy equipment by plane and dog team and it was demonstrated that the plan of dropping supplies and equipment from a plane to the glacier at a high altitude was a practical one. It was probably the first expedition to make use of a plane carrying full mountaineering equipment with the object of landing the climbers at as high an altitude as possible preliminary to the final climb on foot.

This was the first landing ever accomplished by a plane on the slopes of Mt. McKinley and it was repeated several times

[7] When the results had been tabulated, Professor Compton wrote as follows, "You will be interested to know that the one cosmic ray datum obtained by Carpe and Koven in their measurements on Mt. McKinley seems to be of most unusual interest. It represents the only high altitude value of cosmic rays that is available at latitudes so far north. Contrary to the results obtained at lower levels, the intensity at that latitude seems to increase as we go north of the United States. This would indicate, if correct, that there are in the cosmic rays particles which are prevented by the action of the earth's magnetic field from striking the earth at lower altitudes, an important point in connection with our theory of the nature and origin of these rays." He further remarks that the result remains to be verified by a check on barometric pressure. The scientific accomplishment of the expedition was therefore not without interest and importance.

without serious accident in spite of considerable difficulties and uncertainties. Alaskan Airways gained much valuable experience in solving the problems brought up by adverse seasonal conditions.

It is not unusual that knowledge gained in such activities proves of value when similar problems come up in the future, sometimes with an entirely different object in view. To me personally the trip was well worth while and will constitute an enduring memory of comradeship with men who were ready to make an effort and take chances for others when circumstances required it.

The Mt. Logan Adventure

ALLEN CARPE

THE ascent of Mt. Logan in 1925 was perhaps the most arduous feat of mountaineering ever undertaken in North America. In saying this I am not unmindful of the series of efforts, spread over six years, that carried Belmore Browne and Dr. Herschel Parker so close to the top of Mt. McKinley in 1912, or of the final conquest of that mighty peak by the Karstens-Stuck party the following year. All honor to these indomitable men; but I believe that they, and mountaineers generally, will agree that Logan made still greater demands upon its conquerors, even though its summit is slightly lower than McKinley's.

Mt. Logan is the highest mountain in the Dominion of Canada and the second highest in North America. It is in Yukon Territory, not far from the Alaskan border, fairly in the midst of the St. Elias Range. It is the biggest of the great Alaskan peaks, and that means that it is the biggest mountain in the world. For although there are loftier summits, reckoned from sea-level, in Tibet and the high Andes, the mountains that line the Alaskan coast are certainly unequalled in height above their average base level, in the massiveness of their sculpturing and in the enormous extent of the glaciers that cover them. The St. Elias Range alone is roughly as big as all Switzerland, and contains at least half a dozen peaks higher than Mont Blanc. Logan itself rises sheer to a snowy plateau three miles high and fifteen miles long, and on top of this stands a summit system which is really a respectable mountain range in its own right, with peaks thousands of feet high, perpetually clothed in solid ice, all at elevations of from 17,000 to nearly 20,000 feet above the sea. And

---

NOTE.—This paper is probably the last writing of Allen Carpe. It was prepared as a contribution to a popular magazine and was taken by him to Alaska for final revision. He had already published two articles on Mount Logan in the *Bulletin* of the Geographical Society of Philadelphia for October, 1925, and in the *Alpine Journal*, London, for May, 1926, Vol. xxxviii, pp. 72-89. The latter reported scientific observations, for which phase of the expedition's work he was chiefly responsible. The present paper, with its engaging and intimate style, complements effectively his other writings and paints a vivid picture of the trials and hardships of this great expedition upon which he officially represented The American Alpine Club. A few footnotes have been added.—*Ed.*

the whole mass is defended on all sides by the greatest glaciated terrain in the known world, outside of the polar regions. Taking all in all, for sheer inaccessibility I doubt if there is another mountain like it on earth.

The idea of climbing Mt. Logan was born in the minds of several men in the Alpine Club of Canada. It took definite form during 1923 and 1924 under the direction of Colonel W. W. Foster, then president of that organization. Captain A. H. MacCarthy and Mr. H. F. Lambart were chosen as leaders: the former famous for his ascent of Mt. Robson, monarch of the Canadian Rockies, the latter a member of the Canadian Geodetic Survey, of long experience in the North and one of the men who mapped the Logan chain. I was asked to join the party as the representative of the American Alpine Club.

Before going farther let me give deserved credit to those men whose work of exploration and mapping made possible the attempt to climb Mt. Logan. Before a mountain can be climbed we must know how to get to it. That is especially true in Alaska, and it was especially true of Mt. Logan. Ever since men knew of its existence they did not know how to approach it or from which side it might be vulnerable. Explorers saw it from Mt. St. Elias, but there was no crossing the formidable barrier of ice fields to reach it. Then came the survey to delimit the International Boundary between Alaska and the Yukon, and although Logan lay outside its official limits, these men recognized its importance and mapped it as far as they could include it in their observations. Thus we first knew with certainty of its great height, and at the same time learned something of how to attack it. It is a great satisfaction that Mr. Lambart, who was one of those sur eyors, was also able to take a prominent part in organizing the expedition that climbed the mountain.

Our party assembled in the little Alaskan town of McCarthy early in May of 1925. There were eight men, drawn from different walks of life, some meeting for the first time their companions of the trail, all brought together by a common love of mountain adventure. There I met Andrew Taylor, gentle and wise in the ways of the North, with whom the passing years have cemented a strong friendship. He and MacCarthy had been out since February, laying depots of supplies on the lower glaciers, in towards the base of Logan. The rest of us were fresh off

Photo International Boundary Survey

Courtesy Alpine Club of Canada

MT. LOGAN (19,850 FT.) FROM THE NORTH
(Direction of ascent was from the right)

Courtesy Alpine Club of Canada

MEMBERS OF THE EXPEDITION AT McCARTHY, MAY 11, 1925

Left to right: Read, Carpe, Foster, MacCarthy, Hall, Taylor, Morgan, Lambart

the boat from Seattle: Lambart, big-hearted and generous to a fault; Foster, MacCarthy's partner on many Canadian climbs; Read, Hall, Morgan and I. And there was Laing, field worker for the Victoria Museum, who had been sent by the Canadian government to study the birds and mammals of the Chitina valley and whose uncanny ability to make friends with the wild things of the woods deserves a story in itself. We had come up together from Cordova by the Copper River & Northwestern R. R.

On May 12th everything was in readiness. Horses are scarce in the Copper River country, being expensive to keep through the long winters. The ten that we could get were all needed for pack animals, so the men had to walk. And a long walk it was to be, a hundred miles up the great valley of the Chitina River before we should even reach the ice-fields which guard the approaches to our goal, and nearly another hundred over these to the top. Never shall I forget that first day's hike through abysmal mud of a peculiarly gluey consistency to the bridge across the Nizina and up Young Creek.

For six days we marched along the Chitina, following the horses as best we could, hardening our muscles for the work that lay ahead. Wooded hills enclosed our route, their bare crests populated with white mountain sheep. On the seventh day the horses carried our packs to the edge of the Chitina glacier and immediately started back toward McCarthy. Their work was done and there was no feed for them up here. Our problem was to negotiate on foot the eighty miles of glaciers and 17,000 feet of altitude that still separated us from the summit of Mt. Logan.

We got under some pretty heavy packs that next morning. My load of seventy-five pounds, including most of the expedition's motion picture equipment, seemed quite enough to me, but Lambart staggered off under a veritable mountain of no less than 103 pounds. We marched for more than twenty miles over the roughest kind of morainic débris before we even set foot on the clear ice of the glacier. Painfully we crawled with our loads up one interminable hill and down another. All about us the rocks were piled hundreds of feet high in featureless and unstable confusion. From the high points we would get our bearings and then we would build cairns to mark the route as we wound our way through the labyrinth of gullies and sink-holes between the ridges. Three nights we camped along the "shore," in scrubby

growths of timber below Chitina Mountain. Then on the 22nd we took to the ice. We had spent our last night on land for six weeks.

The glacier was getting smoother now. Lanes of snow and clear white ice began to open up between the stony ridges of the moraine. Surface streams rushed beneath culverts of winter snow and plunged into the sombre depths of pot-holes and crevasses. Only ten miles more and we should come to the cache left for us by the winter freighting party: two seven-foot Yukon sleighs, snowshoes, Primus stoves, gasolene and a little food.

From here our lives were governed by the work with the sledges. This meant, first of all, going on night shift in order to travel while the snow remained crisp and hard. We were up at midnight, sometimes before, and could usually count on a firm surface until eight or nine in the morning. Later the snow became soft. We tried to sleep during the day but this was difficult because the sun beat down on our tents until they were like ovens, and even the rays that filtered through the canvas were enough to produce a painful sunburn. Sometimes we would spread our sleeping robes over the tents as a partial protection against the glare. Then in the evening the frost would come quickly.

Some of our heaviest work was on that first march with the sledges. We had a rope on each one and we pulled in tandem by means of shoulder loops. (I have tried the Antarctic belt harness but I do not think it superior to the Alaskan way.) The first man of each team would set the pace in short, quick steps, the others following in unison. The last man, in addition to hauling his share of the load, had to steer by means of the "gee-pole" fastened to the front of the right runner. This was Andy Taylor's job in my team, and usually MacCarthy's on the other. Snowshoes were essential. The loads, augmented by the contents of the cache, came close to 400 pounds per team and suffered from a bulkiness that made them top-heavy: often one of us had to work along the side of the sled to keep it from upsetting.

It was late afternoon before we reached our objective at the mouth of the Ogilvie glacier, which comes down from the base of Logan. The snow was melting under a merciless sun and the sleighs sank in or toppled over continually. Surface streams, flowing in ten-foot grooves of naked ice, barred the way. The

last few miles, crossing rough moraine ridges and in deep snow, were almost beyond our strength. Again and again we would throw our weight into the ropes and strain and wrestle with the loads to get them over some obstacles.

Almost unnoticed during this exhausting day, the great bluish-white mass of Mt. Logan had swung into view, still thirty miles distant when we first saw it. But we made famous progress. At the mouth of the Ogilvie glacier we had come within twelve miles of its basal slopes. We spent a day here,[1] and another night, and on the 25th in a snow storm we moved six miles up the Ogilvie to the last cache left for us by the winter party at an altitude of about 6,000 feet.[2]

Here we set ourselves at once to the task of relaying the major part of the cache six miles farther to the head cirque of the Ogilvie glacier, whence a steep cascade of wonderfully fractured ice led up against the flank of Logan. This ice-fall was the key to the ascent; the possibility of surmounting it had governed the whole choice of our approach. For it was the only visible breach—at least the only obvious one—in the formidable cliff-walls of the mountain, which must be more than fifty miles in circumference. Here at its western extremity the gigantic *massif* thrusts forth a circlet of 12,000-foot satellites around the basin of the Ogilvie, and by working up between them and the main body of the mountain we hoped to gain a foothold on the latter. This much we knew. We had studied it out in many long evenings from Lambart's survey, and MacCarthy and Taylor had reconnoitered the way and had found it feasible.

But beyond what we could see, there was much that remained uncertain. The route lay for a space on the unmapped seaward face of the mountain which no one had ever examined and we might easily be checkmated by some unexpected barrier. The summit peaks rose at the easterly end of the mass, separated from us by the whole bulk of the mountain. Certainly we faced a most difficult high-level journey to reach them.

At any rate we were at last at the real base of Logan: the approach was ended and the ascent began. By May 31st, more than 4,000 pounds of supplies had been brought into the base

[1] "Turn."
[2] "Advance Base Cache."

camp[3] by sleigh, and we had carried a few loads on our backs to the crest of a rocky promontory[4] at one side of the ice-fall. MacCarthy, Foster and I explored a route beyond the top of the ice-fall and at 10,000 feet we entered a high glacial valley that ran back between Logan and the splendid Matterhorn-like spire of King Peak. But whether this valley would give us access to the upper reaches of Logan we could not see.

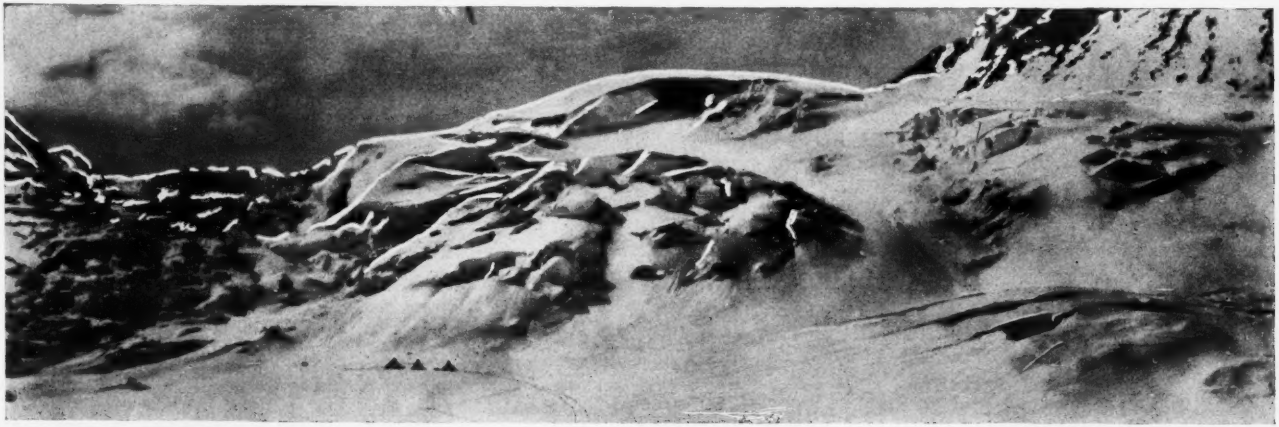
I think it was during these days that the awful loneliness of these great ranges was first borne in upon me with something of the force of a personal experience. Until we turned the corner into the Ogilvie glacier, we could look back down the valley and sense the presence of the lower hills and of living things. Now as we worked in toward the savage cliffs of Logan we entered a new world of appalling grandeur, and our little band seemed insignificant and very much alone. We had no support behind us, no organization of supply, no linkage at all with the outer world. We were on our own.

We talked sometimes of the Mt. Everest Expeditions with their hundreds of porters and pack animals going back and forth, maintaining supplies and communications, with their native settlements so close to the mountain, their march of seven miles up the East Rongbuk glacier. How different things are in the North. On Logan, the nearest settlement 150 miles away, a journey of eighty miles over glaciers, an ascent of 17,000 feet from the ice level to the summit. Save for the physiological effects of extreme altitudes, ours was probably the bigger job.

The ice-fall itself at the head of the Ogilvie glacier was hardly passable for any man, certainly not with loads. But fortunately we were able to turn the lower part of it by means of a steep sheet of snow behind a rocky ridge. Above this, the fissures were more regular and we could climb between them along broad terraces and corridors of ice. The ascent was now far too steep for the sleighs. The angle was about that of a pitched roof. With a 700-foot rope we hauled up one of the sleighs, empty, and carried it along for use higher up. The other one we left. Eleven times, I think, we repeated the climb to 10,000 feet, until we had consolidated our position above the ice-fall with nearly a ton of equipment and supplies.

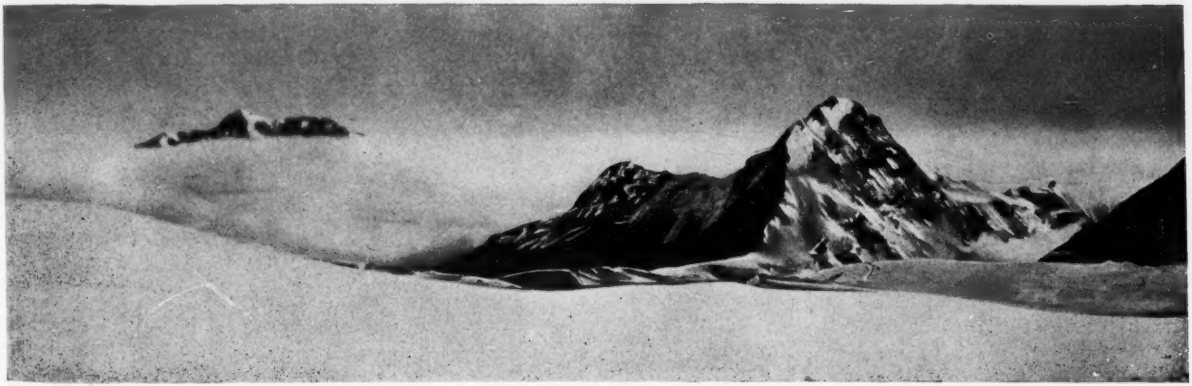
---

[3] "Cascades," elevation 7,800 ft.
[4] Quartz Ridge, 8,800 ft.



Photos H. F. Lambart *Courtesy Alpine Club of Canada*

Above: THE CASCADES AND CASCADES CAMP (7,800 FT.). See page 74
Below: PLATEAU CAMP (17,800 FT.). See page 81



Photos H. F. Lambart *Courtesy Alpine Club of Canada*

Above: KING PEAK (17,130 FT.) FROM KING COL CAMP (LEFT)

Below: KING PEAK (RIGHT) AND MT. ST. ELIAS (18,024 FT.) FROM WINDY CAMP (16,800 FT.). See page 78

We could look out to the south now, where St. Elias loomed in lonely dignity across thirty miles of the Seward and Columbus ice-fields. I think that St. Elias must surely be one of the most beautiful mountains in the world. From the sea, soaring like an icy fang 18,000 feet into the sky, it is a breath-taking sight, like a vision from another world. Here, from the other side, it was more massive and serene—"a lion couchant," Lambart described it—but always with a lifting and ethereal quality that made it seem for all its size a thing more of the sky than of the earth.

There was a slight drift of snow in the air as we pitched camp[5] but we had gotten to an altitude where the snow remained dry and was really much less of an annoyance than in the thawing temperatures of the lower levels. But when that night the mercury fell for the first time close to zero we realized that Logan was going to be a cold mountain. It was. A night temperature higher than zero was rare during the next three weeks, and for the ten days spent above 15,000 feet, temperatures of from twenty to thirty-three degrees below zero were registered each night, with seldom more than a few degrees above zero at any time during the twenty-four hours.

A smoother glacier stretched ahead of us now for nine miles to a saddle between King Peak and the side of Logan. We went out first with packs on our backs and, in a blinding storm of sleet and wind, fought our way to nearly 13,000 feet before we had to put down our loads. Later we used the sleigh in the lower part of the valley, but about half way up a steep rise intervened and we had to abandon it. On foot we worked our loads up to almost 14,000 feet, just in the lee of the King Peak saddle. There we dug out level places for the tents and tramped the snow down until it held our weight without snowshoes.[6]

This was one of our most enjoyable camps. Although nearly ten thousand feet above the snow-line, it was a thoroughly comfortable place, and yet there was all about us and in everything we did that indescribable keenness and exhilaration that comes from the heights. It seemed to me that my senses were quickened and every moment twice lived. Perhaps this strange awareness of the beauty and joy of living is an effect of the altitude; as we climbed higher, it was heightened to a nervous tension that

[5] Observation Camp.
[6] King Col Camp, 13,875 ft.

was intoxicating. But I think that it came mostly from the very real strain and excitement of the adventure, for the cold and the wind and the thinness of the air did not let us forget that we were embarking now into a region where men cannot live for long, and that a very few days must decide the outcome.

As to physical comforts, we had three roomy tents, light but strong, and with inflated rubber air mattresses and warm sleeping robes between us and the snow we could defy almost any weather. One night I remember lying there with the fabric of the tent cracking and groaning in the gale until we could not make ourselves heard above the din. Finally the wind pressure drove the steel tent pole right down through the floor and collapsed the walls about our ears. But we propped it up again and slept soundly, the weight of our bodies in the tent preventing the wind from carrying it away during the night.

We cooked now on gasolene stoves, and on these too we melted all our water from the dry snow—this we had done ever since the middle camp on the Ogilvie glacier. It was an annoyance and consumed much time and precious fuel, but water in fluid form is not found on the mountain. Also many things were becoming difficult to cook because of the altitude, which lowers the temperature at which water boils. Rice, beans, even oatmeal, took twice the usual time. More and more we relied on biscuits, desiccated potatoes and eggs (both excellent and requiring little cooking), canned chicken and the like.

The outlook was very grand, but it was not reassuring. It was not an easy matter to get on to Mt. Logan from the glacial trench that we had ascended. Behind us—the tents faced down the valley—the saddle was not a pass; it led only to stupendous precipices dropping away to the Seward glacier, and above these like the frosting on a cake were ice cliffs hundreds of feet high. There was no way there. On our right the slopes of Logan bulged, dome-shaped, out of the valley, a mass of immense crevasses and pinnacles and tumbled blocks of ice. Under the evening sun the glassy facets of these bergs would catch the light and reflect it with a steady gleam, as the windows of distant buildings sometimes do at sunset. The first few thousand feet were the steepest and the most broken. If we could get through them, there seemed to be clearer ground above.

Consequently, while the rest of us continued to bring up supplies from below, MacCarthy set out with Foster and Read to explore the way. He was not a man to hold back when there was work to do: we did not know until later that he had had a painful night and was suffering from incipient snow-blindness. Up through amazing and intricate ice formations they climbed, staking out the way with willow cuttings brought for that purpose. More than once on the expedition we were yet to owe our lives to these slender markers that stretched, six hundred of them, from the base camp almost to the top. The climbers got to 16,000 feet, and when we came up that evening[7] with our 70-pound packs we were greeted with the welcome news that a route had been found through the worst of the difficulties.

But that night a storm broke, and snow fell almost continually for four days. The tents, which stood seven feet high at the peak, were nearly two-thirds covered, and the camp presented an Arctic appearance. The advance party had climbed easily on a firm crust, but now when the weather cleared at last there was deep, soft snow everywhere and we had hard going during all the rest of the climb. Sometimes we waded almost to the waist and could find no bottom in the stuff under foot. There was snow in everything, in our bedding, in our clothing, even inside the cameras. We couldn't get away from it. At least it was dry—gritty like sand and easily brushed away. That was one compensation for the intense cold. But once when I thoughtlessly breathed on a lens to blow off the white powder, the glass was covered with a film of ice that rendered it useless for hours.

The clouds sank below us and left us in the upper air, thin, cold and unbelievably clear. Billowing mists filled the valleys and extended far out to sea. The temperature dropped quickly to ten below zero. A thick drift churned about the ridges and trailed like a streamer of cloud from the top of King Peak. There was wind high up. With 60-pound packs we climbed all day but made only 1,600 feet of elevation in twelve hours. Once it took Foster an hour to break a trail through scarcely a hundred yards of steep, drifted snow. And by evening the storm was upon us again. On a little ice plateau amid concealed fissures we camped through another day and night of snow and wind, unable to move.

[7] To King Col Camp.

We were not relaying now. We carried the camp right with us, and slept four in a bag to save weight. It might have been a dash for the summit if conditions had been right, but the weather and the deep snow doomed the attempt from the start. The irreducible weights of tents, bedding, etc., left room for only a few days' food in our packs. We could not afford to rest.

The 16th of June came. Very early in the morning the clouds broke away and revealed the frosted blade of King Peak opposite us above a fleecy sea of clouds at the 13,000-foot level. It was as if the whole world was wrapped in cotton batting and only these highest summits pierced the sky. Anyone who has looked down on clouds from a high place, or from an airplane, will know how beautiful it was. The clouds wove back and forth, disclosing first one part, then another, of the view. A spindrift of fine snow ran along the ground. Fascinated, I set up the camera in sub-zero temperatures and took reel after reel of the most glorious film I have ever made—glorious in subject despite painfully limited equipment.

Then we pushed on, fighting all day for altitude against the terribly deep, powdery snow and the increasing shortage of oxygen. Already there was barely half the normal amount of air for us to breathe. Clouds caught us in a tangle of great crevasses, one fully a mile long and hundreds of feet deep. It was awesome to look down into its shadowy blue depths as we crossed a snow bridge with the mists all around us. We took turns breaking trail. When my turn came I would count the steps—25 perhaps until I stopped for breath, 100 before I stepped aside, exhausted and heart pounding against my ribs, to make way for the next man. Thus we kept up a steady advance. At the end of twelve hours we had to camp, for if we waited longer it would be too cold. We had reached 16,800 feet.[8] That night the mercury went to thirty-two degrees below zero.

We were near the end both of our strength and of our supplies. One more day we could stay, then our food would be gone. We spent that day in a last assault, a remote hope perhaps of going on to the top if we could, an attempt at least to find out the way if we could not. In both we were defeated. Climbing more easily with light packs—for there was no use moving the

[8] Windy Camp.

camp higher now—we attained at last the crest of that range of peaks which I have said form the top of Logan.

We reached a height of 18,500 feet, and climbed even a few hundred feet more on a shoulder of the highest peak visible. But we were still merely at the margin of the great summit plateau, with the loftiest points five or six miles distant. And we could see nothing, for clouds and wind and flurries of snow raced across the summit ice-cap and flung us back when we left the shelter of the down-slope. We retreated, and next day Lambart, Morgan, Taylor, Hall and I went down to King Col camp for more food, while MacCarthy, Read and Foster climbed up again to seek a view toward the summits.

This brings us to events which some of us have since felt were crucial: had we retreated when the storm struck us, we might not, they think, have been able to rally our forces and return to the attack. I am not so sure of that; I do not believe we would have accepted defeat so easily. But you may judge for yourself. Here is what happened.

We had made a hard descent, owing to the track being again entirely snowed up, and we had passed a comfortable night at King Col camp in the comparative warmth of five below zero. The following morning was fine and almost sultry. I remember that I stripped to the waist under my canvas parka, and even then the parka was more for protection against sunburn than for warmth. The men came down part way from the upper camp and helped us with our loads. We roped up by fours and were strolling up what we called the "Avenue of Blocks"—fantastic cubes of ice a hundred feet high interlayered with volcanic ash from prehistoric eruptions—when all at once with the suddenness characteristic of high altitudes a furious storm attacked us and seemed almost literally to hurl us back in our tracks.

There was no time to put on warmer clothing. There was no shelter anywhere. Flying ice particles stung our faces. Our feet were numb, yet heart and lungs failed us when we tried to warm ourselves by climbing faster. The wind carried a heavy drift and sometimes we could see but a few feet ahead. Many of the willows must have been carried away or bent flat to the ground. With Taylor, Lambart, Hall and Morgan, I was some little distance ahead of the others. Morgan feared for his feet, and both he and Lambart, having thrown themselves too generously

into the work lower down, felt the altitude severely. MacCarthy, Foster and Read, who had just come down from above and hence were best qualified to know the way back, were all on the other rope: had we anticipated the storm no doubt the party would have been divided differently. I for one had no idea of our direction. It seemed to us that there was nothing to do but retreat and await a better day. But as we veered back, MacCarthy's rope came up. He would hear nothing of retreat. Taking the lead, he pointed the way and we followed. Pounding our feet to keep them from freezing we pushed doggedly into the teeth of the storm. I have no idea how long the fight lasted. But I do know that it was 9.00 P.M. when we reached the camp.[9] And even then the tents had been laid flat for safety and we had with freezing fingers and in temperatures far below zero—it went to minus 21° F. that night—to clear them of the drifted snow and set them up before we could get shelter. When we finally got inside and took stock of our situation Morgan was in no condition to go on and it was decided that Hall should accompany him down. On the 21st at the ends of a 150-foot rope they traced back that line of willows to the foot of the mountain, but not before Hall had joined us with the packs for one more day.

Thus did MacCarthy, late Captain, U. S. N., bring his men to the high camp with loads enough for the climb to the top, and with three-fourths of the party able and eager to go on. It does honor to the man and to the service that bred in him that stubborn persistence in the face of difficulties.

But you must not think of this as really a very high camp or very close to the goal. To us, it was yet to seem a haven of refuge where, if we could but reach it, our troubles would be almost over. For the real test lay beyond the farthest point we had yet reached, out on that terrible summit ice-cap, where we must cross the backbone of the mountain and push a camp within climbing distance of Logan's ultimate peak.

Once more, then, we mounted to the ridge at 18,500 feet and deposited loads of food in clouds and snow. Once more we huddled in the tents[10] to the tune of a storm that threatened to rob us of another precious day. Then late on the 21st it cleared. Was it too late? There was no time to lose. The cold of the

[9] Windy Camp.
[10] At Windy Camp.

evening was coming on apace. At 6.30 P.M. we broke camp and by ten that night we were repitching the tents in a wind-blown hummock of snow actually beyond the bleak granite outcrop of the ridge, higher than men had ever camped[11] on this continent before. I was surprised at the ease with which we carried packs to this altitude, proof of our acclimatization to the shortage of oxygen. But the sun was setting, the mercury dropping like a plummet. We raced with it to rig the tents at ten below zero. When the time came to inflate the mattresses we lacked the strength to do it. We simply lay down and slept on the snow.

Fifteen thousand feet below we could see the glacier up which we sledged. And beyond it were Lucania, and Bear, and many other summits that we could not identify. It was a scene no human eyes had ever beheld; yet, because everything was lower than we were, the prospect seemed singularly flat and it was difficult to realize the vastness of the depths and distances.

In the morning we took packs of sixty pounds and went out on to the summit plateau. We were entering the last phase of the ascent. At our backs now was that bleak granite ridge, swept clean by incessant storms, barring the retreat. There was excitement in the air; but little did we imagine the dramatic events that were in store for us before we should recross that awful rampart.

It stormed again as we lay in the tents that night,[12] and well into the morning of the next day. Towards ten, grasping at the first chance of clearing, we were on the move. Foster led off, holding a steady grade around ridges and valleys of snow. There was no special difficulty, nothing really to stop us save the weakness caused by this tenuous air. That made us miserably slow. We worked towards a pinnacle that we hoped might be the top; but when we reached it we saw before us another peak, a mile distant with a deep valley between, and instinctively we knew that it was higher. I got out the level and sighted carefully. There was no doubt of it.

We were 19,800 feet high and it was 4.30 in the afternoon. Could we go on and climb that other peak? I doubt if the question ever entered our minds—certainly it did not mine. Probably I was the weakest of the lot, but we had gone through too much

[11] "18.5 Camp."
[12] At Plateau Camp, 17,800 ft.

to give in now, although it was clear that we could not get back to camp that night if we went on. Our supply of willows was gone: even that did not deter us. We descended to the saddle between the two peaks and looked out across the Seward glacier to Mt. St. Elias. Down in that thirty-mile cauldron between the ranges mists were brewing and rising toward us. Eight precious hours of sunshine had been ours. Now as we started up the steeper grade of the final peak, snow and drifting clouds again enveloped us.

But we were used to that. We had seen the way. Steadily we mounted, albeit each step was an exertion. Iron spikes were strapped to our feet and now and again MacCarthy notched steps in the glassy crust with his ice-axe. When we emerged at last on a shoulder a few hundred feet below the top, a narrow edge of ice soared into the thin fog above us, as slender and exposed as any Alpine summit. It was a noble culmination for the great mountain. The top was in our reach at last, and at eight in the evening of June 23rd our quest was ended.

What did we see, how did we feel, what were our thoughts in that precarious half-hour of victory? The first question is the easiest: we saw fog about us, and rare glimpses of a world far below of which we seemed not at all a part, and for a time we saw in the fog gigantic shadow images of ourselves—the so-called Spectre of the Brocken. Such apparitions frightened early climbers in the Alps and seemed to them a portent of evil. As to the rest, I fear we were too spent to make the answer very exciting. Almost automatically we went through the appointed routine: hand-clasps and congratulations, a round of motion pictures,[13] the empty gesture of a record of names and date thrust into the snow. Then we turned and began the descent in the gathering storm.

On many a mountain, perhaps, the tale might end here: the return would be at best an anticlimax. Not so on Logan. The hardest part of the battle was yet to be fought. Our tracks guided us down the peak, then they failed us. Ahead loomed vaguely that other summit, behind which were the willows and

[13] Carpe was the only one to carry a motion-picture camera to the summit. This is the highest ground elevation at which such work was ever attempted in this country, being exceeded elsewhere only during the Mt. Everest expeditions.—*Ed.*

Mt. St. Elias ↓

Mt. Logan, First Peak ↓

Photos A. Carpe *Courtesy Alpine Club of Canada*

Above: VIEW FROM SADDLE BETWEEN THE TWO HIGHEST SUMMITS OF MT. LOGAN
Looking southwest across the Seward Glacier, and back towards the First Peak of Mt. Logan

Below: PANORAMA FROM FIRST PEAK OF MT. LOGAN
Showing Summit (x) and route of ascent, looking northeast

Photo A. Carpe *Courtesy Alpine Club of Canada*

SUMMIT PLATEAU OF MT. LOGAN, JUNE 23RD, SHORTLY AFTER LEAVING PLATEAU CAMP

Route party followed shown by dotted line. Peak at end is First Peak of Mt. Logan. Summit Peak is out of sight behind. Foster leading on rope

the trail to safety. We were too weak to retrace our steps over its top. We tried to circle the base of the peak and intercept the marked trail on the other side, but we made almost no progress. The light was failing, snow was falling thickly. It was dreadfully cold. Towards midnight, on a steep side slope, still above 19,000 feet, we stopped. We had little notion where we were; indeed we could see but a little distance.

With our hands and with the snowshoes we scooped out shallow holes in the snow and lay down for the night. The thermometer stood at twelve below zero, then it was lost in the snow. As we lay there, we were covered with a white blanket that was perhaps some protection against the cold. For my part, at least, I suffered little from the temperature. But not all of us were so fortunate. Next morning the situation had become critical. Lambart's feet were freezing. We must move, although the weather was not improved.

At least the daylight was in our favor now. The great danger was that we might cross the trail without seeing the willows and thus go hopelessly astray. Perhaps we had already done so, during the night. We peered anxiously into the white void that surrounded us. At last came a shout of relief; for there, vanishing and reappearing as the eye focussed on it, was the thin black line of a willow twig that pointed the way to safety. To all of us it was surely the most beautiful sight in the world.

The weather was so dense that often we lost sight of one marker before we picked up the next one. Somehow we became separated in the storm. Lambart, Taylor and Read, to be sure, got back to the tents that evening. The rest of us lost the trail, wandered about in the fog, then found it again. We could not know that in that interval we had described a circle and were now headed back across that terrible ice-cap toward the summit.

Blindly we followed the willows for a time before the strangeness of the slopes began to appall us. Then we searched the ground in desperation for some sign; but wind and snow were blotting out even our own tracks almost as quickly as we made them; there was nothing to tell the direction. It was a fearful decision that we faced, for in very truth our lives depended on it, and we spent perhaps an hour before we could bring ourselves to make the choice. Finally we faced about and retraced our way.

Evening came again, and we moved on intermittently through a second night, during which our comrades at camp read temperatures of twenty-five below zero. Even yet we could not be sure that we were on the right track. Once more we lost the willows and marched for a long time as best we could without them. At dawn the clouds parted and we saw the first rays of sun on snowy peaks. Everything looked strange. A feeling of panic struck me for a moment; then all at once the mists shifted and disclosed the tents,[14] only a few hundred yards away. After nearly forty-two hours without shelter, we cut off our frozen clothing and crawled exhausted into our sleeping bags.

Towards noon on June 26th, Hall and Morgan, on the glacier far below, saw a tiny cloud form about the west end of Logan's summit and, spreading quickly, cover the whole upper part of the mountain. We, that morning, had abandoned the tents and were just starting the thousand-foot climb back up to that ridge at the edge of the ice plateau when the storm hit us. It was a gale that made everything we had felt before pale in comparison. The ground was laid bare to the icy crust below: with numbed fingers we had to exchange snowshoes for crampons to keep a footing. Crouched low, we tried to stand against the wind that flung us helplessly out of our tracks.

There was a drift running such as we had sometimes seen about these high ridges from below, so dense at times that we could not see one another or even the ground at our feet. Foster was snow-blind, Lambart scarcely able to carry on; my right hand seemed like a board. Unless we could reach the crossing of the rock ridge before the clouds closed in, our position would be desperate. MacCarthy, Foster and I forged past the others, but the storm beat us off to the right, too far below the narrow defile where we must cross the ridge. From behind, Read saw the error. Leaving Taylor with Lambart, he climbed up and beckoned us to follow. Thus the four of us finally reached the crossing, and Foster and I sank down exhausted against the rocks. But MacCarthy and Read went back out into the storm. Relieving Lambart of part of his pack, they helped him forward and brought him safely into what little shelter the gap afforded.

[14] Of Plateau Camp.

We must have been fantastic figures indeed. Great icicles hung from our beards and noses, our eyes were frozen shut. The mat of ice that covered MacCarthy's face was crimson with blood. Lambart, true to his calling, tried to read his barometer. But he was almost blind. Something in the unselfishness of that attempt penetrated the stupor into which I had fallen, and I stumbled up to help him read the instrument. It seemed like a great distance, requiring an immense effort of will, yet a snapshot miraculously taken by Read shows it to have been scarcely six feet. I, too, could hardly make out the figures. I think we finally decided to call it 20,600 feet, quite a probable reading, for the great cold and the storm decrease the density of the air and increase the apparent altitude.

There was less weight in the wind when we got across the ridge, and soon we dipped down into an almost stagnant layer of clouds and softly falling snow. There was no vestige of our former trail, only an occasional willow protruding a few inches from the new-fallen snow. Sometimes we could detect the harder surface of the old track under foot, and by shuffling along carefully we would follow it by this sense of touch. Or again, Read would go ahead as far as visibility permitted and search out the willows. We passed the site of our 16,800-foot camp: there was no shelter there. Midnight came, and in the very early hours of the new day the clouds at last settled below us, and in a limpid pale green sky St. Elias was serene and incredibly near. Indeed there was no sense of distance at all: you might have put out a hand and touched it. It is an unforgettable memory that marks our escape from that dramatic ordeal.

We still had far to go, but I need not dwell on these lesser tribulations of the long journey home. There is no need to tell of Lambart walking for days, uncomplaining, though the ends of his toes were sloughing off and the bone coming through. Or of the food caches rifled by bears; or of how we felled trees and built rafts to descend the Chitina River, how one of the rafts capsized in the rapids and almost brought tragedy to us at the last. But one thing is so vivid in my mind that it seems a fitting note on which to close this tale of Alaskan contrasts. For when we at length got off the glacier, spring had come in the valley, and there was the scent of wild-flowers in the air. Lupine and roses and forget-me-nots and violets blossomed in

the sparse soil, humming birds flitted about the camp. Perhaps you would have to spend two months on the ice and snow as we did to know the poignant joy with which we greeted these simple things. We had courted Alaska in her iciest mood, and now at the very edge of the greatest alpine glaciers in the world she rewarded us with this glorious flowering of the northern summer.

NOTE.—For the benefit of readers on this side of the Atlantic who may not have noticed them, we print the following comments on the Mount Logan Expedition.

In the discussion which took place after the reading of Mr. Lambart's paper before the Royal Geographical Society on April 12th, 1926, Dr. Tom G. Longstaff remarked: "I doubt if greater difficulties have been overcome on any mountain." Col. E. F. Norton said: "In conclusion I should like to add my tribute of admiration of this really remarkable achievement. One hates superlatives, but I think that when you come to consider the conditions, you will realize that the conquest of a mountain of the magnitude of Mount Logan in those latitudes, and at the very first attempt, must stand alone—a unique performance in the annals of mountain exploration." *Geographical Journal*, July, 1926, Vol. LXVIII, pp. 24-25.

The *Alpine Journal* (Vol. XXXVII, 1925, p. 338) in referring to the expedition, printed the following: "Greater hardships have probably never been experienced in any mountaineering expedition."—*Ed.*

Reconnaissance in the Coast Range of British Columbia

HENRY S. HALL, JR.

UNTIL a few years ago the Coast Range of British Columbia was not thought to contain any peaks comparable with the principal summits of the Canadian Rockies and Selkirks. In 1922 Capt. R. P. Bishop climbed a peak near the south end of Chilko Lake, Mt. Good Hope (10,670 feet) from which he saw and photographed toward the northwest two outstanding mountains never previously reported. The higher of these peaks he estimated at about 13,000 feet. V. Dolmage in his 1924 report of field work in this same district also hints at a 13,000-foot peak and actually uses that figure on his accompanying map, but not in its correct location.

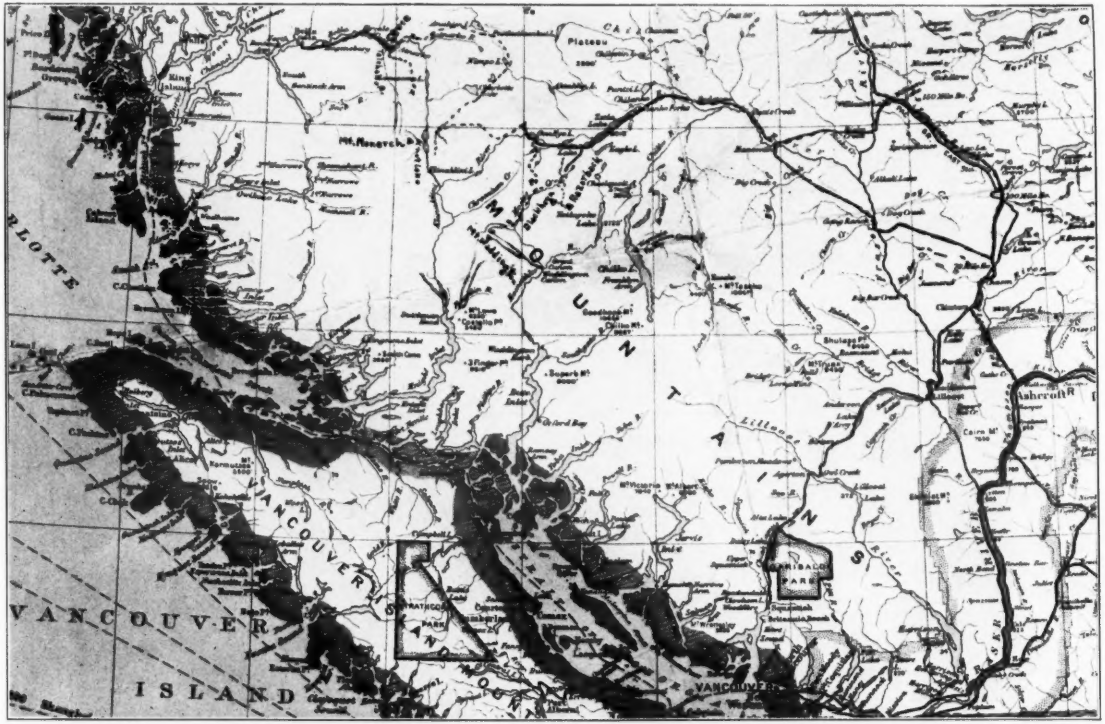
In June, 1925, Mr. and Mrs. W. A. Don Munday of Vancouver, from Mt. Arrowsmith in Vancouver Island, in clear weather, saw to the north of them on the mainland a very high peak which so excited their curiosity that they started later the same summer to try to locate and if possible reach this mysterious peak. The highest mountain which they then saw was not the same peak which Bishop had seen in 1922. In September, 1925, they went by boat to the head of Bute Inlet, 125 miles north of Vancouver, climbed Mt. Rodney (7,843 feet) and looked toward the region surrounding "Mystery" Mountain. In the early summer of 1926 they returned to Bute Inlet with a larger party, worked their way up the difficult Homathko River for thirty miles and up a westerly tributary creek, thence up on to snowfields and glaciers until they stood at 10,000 feet, at the base of a peak only three or four miles to the southeast of "Mystery" Mountain itself, which they found to be a startling gray granite mass surmounted by a slender summit tower, the whole rising from glaciers and snowfields of entirely unexpected vastness.

This route of approach had proved so difficult and dangerous that in 1927 the Mundays went to the head of Knight Inlet, some distance farther up the coast from Vancouver, and luckily found, only seven miles from and five hundred feet above tidewater, a huge glacier, which they were able to follow up for twenty-five

miles until they were on the main ridge of "Mystery" Mountain just west of the summit. They climbed until turned back by a storm at 11,500 feet. In 1928, by the same route, they reached the northwest summit, a snow arête, but were unable to attempt the higher slender eastern pinnacle which was separated from them by a gap and looked, as it had from the opposite side in 1926, excessively difficult and inaccessible. All of these valiant attempts and subsequent trips to the Franklin Glacier basin have been covered by Mr. Munday in several articles, with fine photographs and a map, published in the *Canadian Alpine Journal,* and also in a summary article in the December, 1932, issue of the *Canadian Geographical Journal.*

"Mystery" Mountain has been officially named Mt. Waddington by the Geographic Board of Canada, after Alfred Waddington who in 1864 tried to construct a wagon road from Bute Inlet up the Homathko River valley through the range to the interior. The twin peak to Mt. Waddington, which Bishop also saw in 1922, and which in his photograph shows distinctly just to the right, has been named Mt. Tiedemann after H. O. Tiedemann, who was Waddington's engineer.

There are still large areas in the Coast Range, itself nearly five hundred miles long and from seventy-five to one hundred miles wide between the United States and Alaska boundaries, which remain to this day almost, if not entirely, unknown. In this long stretch there are but few natural passes through the range. Railroads cross it in three places: The Canadian Pacific and Canadian National, by the Fraser Gorge just north of the international boundary; the Pacific Great Eastern, sixty miles north of the Canadian Pacific; and the Canadian National (formerly the Grand Trunk Pacific) by the Skeena River, fifty miles south of the Alaska boundary. Betweeen the P. G. E. and the C. N. R., a distance of four hundred miles, there are no routes of travel through the range except the road up the Bella Coola valley which, so far, is only connected with the interior road by a stretch of fifty miles of horse trail. The Indians have ways of crossing the mountains by arduous foot routes. The several rivers which flow from the interior to the inlets of the Pacific are useless for navigation, even by canoe, being broken by falls, rapids and canyons. Sections of the range in the vicinity of Chilko Lake, the Southgate and Homathko rivers, have recently been seen from



SOUTHWESTERN BRITISH COLUMBIA

Author's routes shown by dotted lines between Stuie and Tatla Lake. Roads from Bella Coola to Stuie and from Ashcroft to Tatla Lake via Williams Lake and via Gang Ranch shown by solid line. Degrees of latitude cover approximately 70 miles

the air. The area between the Klinaklini and Bella Coola rivers, some four or five thousand square miles, is unknown back of the inlets which penetrate it, except perhaps for one or two old Indian routes.

The core of the Coast Range is a granite batholith forced up millions of years ago through the overlying sandstones, limestones, slates and volcanic rocks. The granite formation begins at the coast and occupies all but a strip about twenty-five miles wide along the northeastern edge of the range. Precipitation in the Coast Range is unusually heavy, varying from seventy-five to over two hundred inches a year. As most of this occurs in the winter months, the snowfall above three or four thousand feet is enormous, and results in such glaciers as the Franklin, Scimitar and Tiedemann of the Waddington group, respectively twenty-five, eighteen and fifteen miles in length and flowing from snowfields several hundred square miles in extent.

If it were not for the weather generally encountered in the range, considerably less favorable to the mountaineer than that of the Rockies or the Alps, great things might soon be expected of it as a climbing area. The weather is perhaps similar to that of the better known New Zealand Alps. In both occur occasionally stretches of very fine weather of several days duration, but always there is the possibility of an almost hourly change from brilliance to storm. These sudden changes come, as far as the climber who may be many hours from camp is concerned, almost wholly without warning, and he must *always* be prepared for rain, hail, snow, lightning and wind on the finest day.

I have made three short trips of reconnaissance into the range, first in September, 1931, and again in July and August, 1932.

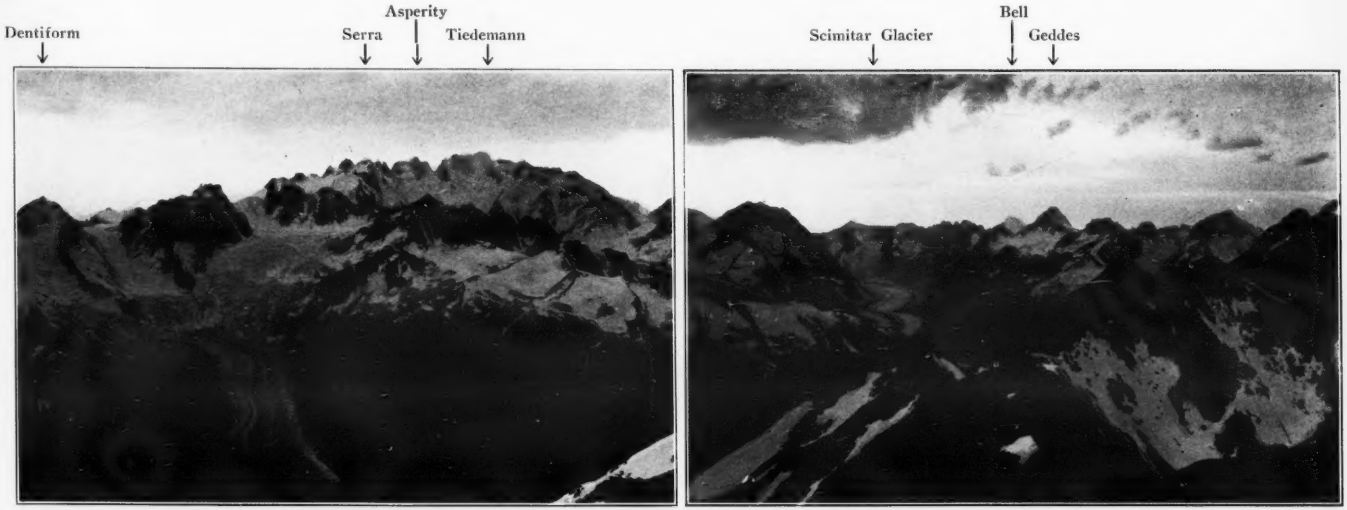
In 1931, with a chance acquaintance made at Lake Louise, an Englishman, Sir Norman J. Watson, I took the P. G. E. to Williams Lake, and luckily secured a ride from there one hundred and seventy miles west by the only road, on the semi-monthly motor mail stage, to Tatla and One-Eye lakes. With a local man, Pete McCormick, and an Indian, we made a short pack trip of six days, mostly above timber-line, to a point overlooking the north fork of the Homathko River (also known as Moseley Creek), above Middle Lake. After waiting for five hours one day and eight hours the day after in a cold north wind on a small rock peak at about 7,700 feet, I had a five minutes' view through

a rift in the clouds of what I felt sure was the main Waddington group about twenty-nine miles away. That was enough.

In July, 1932, I took the small but comfortable steamer *Venture* of the Union S. S. Company, up the coast two hundred and seventy-five miles north from Vancouver, a thirty-three hours' sail to Bella Coola, at the head of Burke Channel. Bella Coola was the point at which Alexander Mackenzie in 1793 reached the Pacific, the first white man to cross the North American continent. My object on this trip was to find out what I could of the mountains between the Dean and the Klinaklini rivers, and particularly about one peak between the Bella Coola and Klinaklini which I had heard of in 1931, and which was apparently identical with the recently named Mt. Monarch (11,714 feet). The weather, as in 1931, was against me, but I did succeed, after one false start, in reaching the base of Mt. Monarch, probably, next to the Waddington massif, the finest peak in the Coast Range.

From Bella Coola, where Pete McCormick met me, we drove by car the forty odd miles to Stuie, the scene of a summer Indian encampment, where there is just being completed a hunting lodge by two young Englishmen, Arnold and Walker. Stuie is at the junction of the Talchako, a white glacial stream, coming in from the south, and the main Bella Coola River. Up the Talchako valley there is visible a peak which I have good reason to believe is Monarch. Pete and I spent six days in an unsuccessful attempt to reach it by the high ground between the Talchako and Atnarko rivers, the latter, the next more easterly tributary of the Bella Coola, really its main source.

Returning to Stuie we set out again, this time east through the range up the Hotnarko valley, past Anahim Lake, thence south and striking west again into the range past the southern shore of Kappan Lake (also called Charlotte Lake). By the fifth day from Stuie, the day after passing Kappan Lake, we came to the edge of the great north-south trench, 4,000 feet deep, of the north fork of the Klinaklini and the Atnarko. These rivers rise at the south and north ends, respectively, of Knot Lake (about 2,000 feet), an unofficial name used locally because of its bowknot shape. The lake is not yet shown on any map that I have had reference to. Across the lake and not more than six or eight miles back of it, towers Mt. Monarch, its summit



PANORAMIC VIEW OF WADDINGTON GROUP AND SCIMITAR GLACIER FROM THE NORTHEAST

Photos H. S. Hall, Jr.

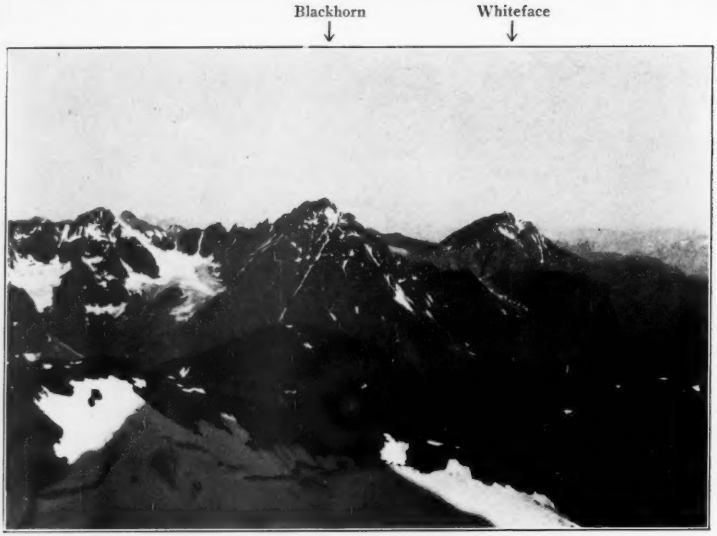


Photo H. S. Hall, Jr.

VIEW FROM 9,900 FT. ON RAZORBACK

Photo H. S. Hall, Jr.

RAZORBACK (10,667 FT.) FROM BLACKHORN

rising nine or ten thousand feet above. The three days at this camp were used to climb once to 8,000 feet for a view which, however, clouds largely obscured, and in walking some miles farther south for a different view of Monarch and down the north fork of the Klinaklini. The whole climb of Monarch from lake to summit will undoubtedly involve some days of back-packing and reconnaissance of routes, all of which appear long and difficult.

In two more days we were out of the mountains. After spending a night with Pete at his cabin on Fishtrap Lake, I was fortunate in finding a local man with a car who was willing to carry me the whole distance, two hundred and seventy-one miles, out to Ashcroft by way of the Gang Ranch, a trip on which, he and I taking turns at the wheel, spent about fourteen hours of hard driving over the rough mountain roads. I had left Vancouver July 5th and could have returned to it, the next morning, on the 25th.

Again, in August, I came to Ashcroft, met Hans Fuhrer from Jasper, and we drove that morning by the Cariboo road to Williams Lake by the mail stage; from there, after a session at the grocery store, we drove on in the afternoon to Alexis Creek, putting up for the night with the Tom Lees, and reached Tatla Lake the next morning, making further purchases of food at Graham's store and spending the night with him.

The next seventeen days from Tatla Lake and back was to be spent traveling by trail and otherwise down the Homathko (Moseley Creek) to have a close view if possible of Waddington, and in making two or three ascents. These objects were all accomplished, in weather which though poor most of the time fortunately cleared on just the days most necessary for views. A trail goes as far as the west end of Middle Lake, thirty miles, taking one and a half long days. The next ten miles took two and a half days of trail cutting, wading in sloughs, river water, Twist Lake itself, and much hard work. We camped four nights on the north side of the river, near the first big southerly bend, and on the second important side creek below Twist Lake. From camp at 2,800 feet Hans and I on two days climbed high out of the valley on the north side, the first time to 8,300 feet, for a beautiful view of the Waddington group, of which all but the actual peak of Waddington itself was visible, being hidden behind

Tiedemann; and the second time across the same ridge and partly down into the valley, separating the ridge from the principal group of peaks. An intervening day was spent unsuccessfully in trying to cut a foot trail along the main valley into Scimitar Creek, the third below Twist Lake and the one which we were not able to reach from the ridge above, the day after.

Satisfied concerning the approaches to and climbing prospects in the main group from the east, I next decided to return up the Homathko and be sure of high viewpoints for a more extended sweep of the range to the southward. We came back a few miles beyond Twist Lake, turned south up a tributary stream for a day and a half and camped between a peak which I had named "Blackhorn" in 1931 (*ca.* 10,050 feet) and Mt. Razorback (10,667 feet), the latter the highest summit between the north and south forks of the Homathko. On August 24th and 26th Hans and I made first ascents of these two peaks, gaining from each in perfect weather absolutely clear views of the Coast Range: from beyond Chilko Lake to the southeast; south beyond the Southgate River; southwest to the Waddington massif, Waddington itself dominating the landscape above the other peaks which we had the week before seen only six miles away; northwest to Monarch; north and east to the rolling interior plateau country.

Here is an area of virgin peaks, many over 10,000 feet, several in the Waddington group over 11,000 and 12,000, Waddington itself 13,260 feet, nearly 300 feet higher than Robson, and Monarch standing out by itself to the northwest, which should soon become better known to those mountaineers who enjoy climbing in new rough country, partly unknown and almost wholly unmapped.

On the second afternoon from this camp we were back at Tatla Lake, and the next evening, after motoring 305 miles by way of Williams Lake, reached Ashcroft, which is on both the Canadian Pacific and Canadian National Railways.

From north northeast

From northeast, showing route of ascent

BEAR CREEK SPIRE

Photos N. Clyde

Scrambles on Bear Creek Spire, Sierra Nevada

(First Ascent from the East)

NORMAN CLYDE

PERHAPS the least known of the finer peaks of the southern Sierra Nevada of California is Bear Creek Spire. Although only a moderately impressive peak when seen from the west, from other directions it is very beautiful and imposing, rising in steep crags and narrow crests terminating in a jagged summit 13,705 feet above sea-level. It is a "triple divide" peak at the heads of Bear, Pine and Rock creeks. Ascended for the first time in 1923 up its west face—a short but interesting climb from a very high alpine basin—it has since then been climbed from that direction by half-a-dozen parties.

In October, 1931, from a bivouac (10,000 ft.) on Morgan Creek, a tributary of Pine Creek, I proceeded up-stream in the direction of Bear Creek Spire. As I surveyed its precipitous east face across a cirque at the head of the stream, I began to consider the possibility of an ascent here rather than to go around the north side of the mountain and try it from the west, as I had originally intended. Upon carefully scrutinizing it with binoculars, it appeared to be feasible with the exception of a tier of high cliffs extending across the base of the mountain. But these, it seemed, could be flanked by going around their southern end. Above the cliffs the top of the mountain looked accessible by making an ascending traverse to the right across a series of couloirs and ragged ribs.

After crossing the cirque I began the ascent. Confronted by glare ice in a chimney, I cut steps for a short distance up this and then climbed its left wall, gradually swinging around to the mouth of the first of the couloirs above the cliff belt. These couloirs rise for many hundreds of feet at an increasingly steep angle; they were difficult to climb because of the few holds and because of deep new snow on the less precipitous portions.

For hours I continued to ascend these chutes one after another. Whenever one became too difficult, I would cross a rib to the next on the right. Progress was slow on account of the need of removing snow from the narrow shelves along which I passed. At one

place a scanty ledge terminated in an overhang at the end of a buttress that broke away in cliffs. Here I left rucksack and ice axe behind and advanced to reconnoitre. The overhang proved to be simpler than it looked, but beyond it a heap of loose rocks lay at a precarious angle above the brink of a considerable drop. By availing myself of handholds, however, I managed to swing safely over them. I then returned and brought my impedimenta around the somewhat disconcerting point.

Eventually having gotten free of the couloirs, I came out on the upper portion of the face of the peak where I proceeded without much difficulty, except for an annoying amount of loose snow. The afternoon being by this time well advanced, I made haste as rapidly as conditions would permit in the direction of what appeared to be the top of the mountain, but upon arriving, found it to be only one of a number of points surmounting the jagged summit-arête, the highest being still some distance to the north. As most of the arête was very difficult to traverse, I dropped down the face for a short way and after consulting a map, continued along ledges until abreast of the estimated position of my goal. Climbing directly upward, I presently found myself again on the crest, this time only a few rods south from the summit-rock, a low, rounded monolith, scalable only from the north. Having reached this side of the rock and substituted tennis shoes for nailed boots, I pulled myself up to the top, an area of only a few square feet and thus effected the first ascent of the mountain from the east.

There I sat for a few minutes contemplating the view. Bear Creek Spire is one of the best examples in the Sierra Nevada of the Matterhorn type of peak, three jagged arêtes abruptly descending and radiating from its narrow summit. It commands a magnificent view of a hundred miles or more of the lofty crest of the Sierra which falls away abruptly to the arid basin east of the range, but on the west slopes down gradually to the great interior valley of California. As the setting autumn sun was already nearing the dark line of the Coast Range looming indistinctly a hundred miles away, I made haste to descend from my lofty perch. Scrambling down the west face of the mountain, I swung around its north one and over a ridge extending northeastward to the headwaters of Morgan Creek which brought me to camp some time after nightfall.

During the following May I camped again on Morgan Creek. After proceeding several miles up the snow-filled canyon, I again surveyed the east face of Bear Creek Spire. On account of the great amount of snow, the route followed the previous autumn appeared to be hazardous. Avalanches might fall at any moment. I therefore considered the feasibility of reaching the summit by way of the northeastern arête. If a steep—apparently almost vertical—pitch a hundred feet or thereabouts in height near the base of the mountain could be scaled, it looked possible to continue along the arête to the top of the mountain. The buttress being found scalable both by a small chimney and a ledge running along its north face, I followed the crest of the arête in the main for a few hundred feet, but upon encountering difficulties, began to pick a way along shelves on the southeastern face. Near the summit, I again ascended to the crest of the arête, but a furious wind soon drove me back to the ledges. Having reached the end of one of these, I removed my rucksack and rather carelessly set it down, in order to uncoil a rope with which I intended to pull up the sack after squirming up a narrow crevice. Hearing a slight sound, I turned and saw it slipping down. I could not grab for it for fear of losing my balance and going along too. After falling about seventy-five feet, it slid down snow for perhaps eight hundred feet, and then over the brink of a five-hundred-foot cliff. Far below it reappeared, bounding down over another snow slope some five hundred feet in width, and finally coming to rest at the edge of a cliff. "That's the end of camera, binoculars, etc.," I thought.

After scrambling up to the crest, I continued along it to the top of the mountain, upon which I remained but a few minutes, a heavy wind almost blowing me from it. Returning along the arête to a point abreast of the lower portion of the larger of the two snow-covered areas, I traversed it for some distance and then began working my way along the cliffs in the hope of recovering some of my property. Failing in this, I returned to the arête and descended by it to the foot of the cliff which I scaled with no better results. I did, however, observe several dark-looking objects lying on the surface of the snow, which I regarded as fragments of rocks dislodged from above.

On the ensuing morning I returned to Bear Creek Spire. After scaling the first cliff, I continued across the lower snow area toward the dark objects seen on the preceding evening. Considerably to my surprise, I discovered that they were various items of my equipment, most of them in a more or less damaged condition. One lens was missing from the binoculars, the box of the camera was badly out of shape, but lenses and shutter seemed intact, and an automatic pistol, carried for collecting purposes, was apparently none the worse for the thousand foot combination of drops and glissades. While going over the cliff the rucksack had burst, scattering its heavier contents like a charge of shrapnel, but the sack itself together with some of the lighter articles, continued across the snow for another five hundred feet.

Being only about a thousand feet below the summit, after retrieving most of the lost articles, I climbed it for the third time, finding the day much more pleasant than the preceding. The central cliff being scalable, I could doubtless have crossed the upper snow directly, thus ascending the peak by a third complete route up its east face. In all likelihood this can be done safely in favorable conditions. Without dangerous snow, one can readily ascend the southeastern arête and descend the northeastern one, thus accomplishing one of the finer climbs of the Sierra, and one of a superb peak neglected thus far by California mountaineers.

Climbing in the Mount Sneffels Region, Colorado

DWIGHT G. LAVENDER AND T. MELVIN GRIFFITHS

GOOD climbing possibilities are usually enough to lure most alpinists to a region, but new routes and perchance first ascents add further zest to the enterprise. We knew the history of Mount Sneffels (14,143 ft.) pretty well. Our abortive attempt on the north face in 1931 taught us that this hitherto unclimbed face, though very difficult, would be possible.[1] It was to attempt this and certain adjacent peaks that we (Gordon Williams, Melvin Griffiths, and Dwight Lavender) drove early in July, 1932 to the sawmill on East Dallas Creek and in two trips back-packed our gear the four miles in to Blaine Basin. The weather remaining perfect, on the morning of July 3rd, we made an early start for the northwest aiguilles of the Sneffels *massif*. We will let the pages of Gordon's Journal tell the story:

"For our first climb we chose the second highest of the needles. To begin with, we christened our victim 'The Hand,' because it slightly resembles the palm of a hand, with the thumb to the south, and the tips of the fingers overhanging a little to the east.

"After a brief reconnaisance, Mel decided he could make the almost vertical northern extremity, *i.e.*, the little finger. This turned out to be shingled with very loose rock, and the general structure decreased in stability higher up. Mel saw fit to retreat, after gaining about fifty feet, and descended on the doubled rope to the col at the north end.

"Our next attempt was on a ledge on the west side of the arête. This route proved successful, but the climbing was again slow because of the loose hand- and foot-holds and perched boulders. I did considerable grumbling about the non-technical climbing and the dangers of rotten rock. From the ledge the crest of the arête was gained and followed about two hundred feet to a small gendarme. Beyond this we could see no feasible route to the summit. Mel led over the gendarme and shouted back that the needle would go, but that there would be an exposed traverse. Dwight and I agreed, with the proper invectives, as we came in sight of the difficulty.

"The only possible route lay across the balls of the fingers, so to speak, just above the overhang and a sheer drop of about three

[1] See *Trail and Timberline* for December, 1931.

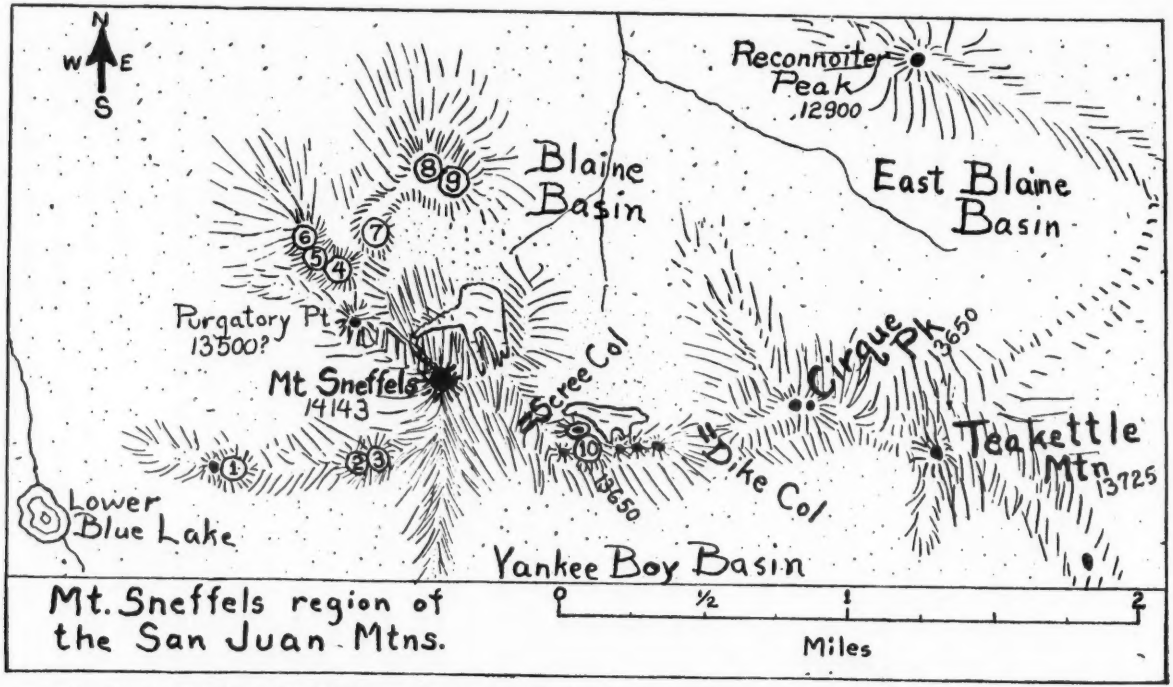
hundred feet. The last fifteen or twenty feet were up a rotten little chimney which was practically as exposed as the traverse itself. We examined the traverse closely and noted that there were a few projections dotting the face of the smooth and now solid rock. All agreed that the traverse would be possible, but that the psychology born of the sheer drop below would present a handicap.

"We estimated sixty feet to the 'crow's nest' which is practically the summit of the peak. I then untied so that Mel would have sufficient rope to pass the traverse, ascend the chimney, and reach the 'crow's nest.' I belayed the rope over a projection of rock, and Mel cautiously stepped out over the abyss. It seemed an age before he reached a ledge which would accommodate both of his feet at once. This ledge was half way along the traverse, and the belay seemed puny enough at that distance. From his position the leader drove a *piton* into a crack at arm's length above his head. To the piton he hung a *karabiner,* and in that the rope was snapped. With such additional assurance, the first part of the traverse was duplicated, except that the chimney was, if anything, a little more difficult than the face.

"Securely belayed from the summit above, I next and then Dwight reached the top. Once up, there was nothing to do but write out a record and dread the descent which we did aloud and unabashed. The record, à la paprika can, had to be wired to the scanty top, a nerve wracking procedure in itself. For Dwight and me, at least, the descent was not as bad as we had anticipated. Belayed as we were from above, we backed down from memory; the theory was good but our memories were bad, and as Dwight avowed, when we looked down between our legs for verification, it took us five minutes to see the bottom. Mel came down by two stages, *en rappel* from a rope ring at the nest to the *piton,* and from the *piton* by semi-climbing and *rappeling* to our notch. Before the last maneuver he pocketed the *karabiner.* We rappeled once from the north arête to the western col."

The ascent of the aiguille had taken five hours, and though we had the rest of the day at our disposal, the other needles did not look too inviting. Nevertheless we could not afford to waste it, so we contoured to the upper end of Blaine Basin with the intention of reconnoitering Kismet.

The north face of the Aiguille Kismet proved unsatisfactory, and in order to get a view of the east ridge we ascended Dike Col. At the col we found the prospect still poor so we decided to climb Cirque Mountain because its summit would afford us a vantage point from which to scout the western face of Teakettle Mountain,



Legend: (1) Wolf Tooth; (2) Blue Needle; (3) The Monolith; (4) The Hand; (5) The Penguin; (6) The Thumb; (7) Number One; (8 and 9) Blaine Peaks; (10) Kismet.

a peak on our program, as well as Kismet's east ridge. Cirque offered nothing more than a walk. A cairn was hastily thrown together and after making the necessary observations we hurried back to Dike Col after sunset. From here it was possible to descend the first eight hundred feet into the basin in one long glissade.

On July 4th we again gained the col, prepared to attempt Kismet. The route from the col worked to the right, keeping on the south side of the east ridge. By crossing a number of ribs which drop to the south we worked to the southeast base of the final pinnacle. So far, the climb had been easy and the broken rock made the last bit but little harder than the portion before.

The summit revealed no cairn, though we found a wooden stake some two hundred feet below the top. This summit (13,650 ft.) offered us one of the most delightful rests of the entire trip. The sun shone warmly and we lolled about admiring the view which is one of the finest in the region.

July 5th saw us using Dike Col for the last time. The early morning found the long snow slope frozen hard and it was necessary in a few places to cut steps, though for the most part our old tracks had remained open. Almost a thousand feet were lost by the time we contoured into the little cirque to the south of the Teakettle. A couloir running directly from the summit seemed to offer the best line of attack. With Gordon in the lead we began the climb, but had little more than started when we got into difficulties. Débris was falling and to escape we were forced on to the right bank of the couloir where the rock was of a most disagreeable type. We worked up as carefully as possible, and at the first shelf swung to the right out of the gulley. This placed us on the face of the mountain above the first band of cliffs. The second band of cliffs was negotiated by means of a narrow chimney which was literally loaded with rock fragments. The next band was not as difficult, and in good time we arrived on the crest of the east ridge.

The final pinnacle is cut by a sixty-foot chimney on the northeast face. Gordon worked into this and ascended rapidly for about half of its height. Here he experienced some difficulty from a ledge loaded with crazy rock fragments, but after knocking the bulk of them off he was able to pass on to the top.

Teakettle Mt. (13,725 ft.) has by far the finest summit of any of the San Juan peaks that we have visited; it is small, solid, and well isolated and one can pleasantly perch on its flat surface with a fine sense of segregation from the rest of the world. Too soon was it time to leave. Our line of descent lay along the southeast ridge for some distance, and then by way of couloirs and steep screes to the cirque of the morning. Again at Dike Col we halted for a last look at the now familiar skyline to the south; it will long remain a pleasant memory. Then tearing ourselves away, in one swoop of eight hundred feet we glissaded to the basin below.

Our three strenuous days could not help but affect our rising time on the morning of July 6th. On this of all mornings we ought to have made an early start, for it was our intention to assault again the north face of Mount Sneffels. By eight o'clock we finally got away. The original idea was to use the planned central-cliff route, but our late start forbade this, and suggested the right couloir as an easier alternative, though we could expect more danger from falling débris. The couloir proved to be a veritable hell of snow: hard snow, crusted snow, soft snow, and soggy snow. We were continually forced to relieve the leader, kicking steps was so arduous. Occasionally it was necessary to chop steps where the snow had hardened excessively or ice appeared.

Just below the turn in the couloir considerable difficulty was encountered in soft snow. The leader sank in to his hips at every step, and the going was so heavy that it took us an hour to cover one hundred feet. After a two hour additional grind we reached the little rock rib which descends directly from the summit cliff, forming the head of the couloir. Here we roped for the first time on the climb. Gordon, who was now in the lead, experienced some trouble in making lodgment on the rock; it was covered with a thin sheet of ice. Once on the rock he worked to the right into the base of a chimney which ran up directly under the summit. Gordon again had some difficulty near the top but shortly his reassuring shout came down and Mel and Dwight followed him, emerging a moment later on the very summit.

The north face had at last been overcome. Two years of planning had come to fruit. Our jodels of rejoicing must have been heard for miles. We had been on the peak for seven hours

without a stop, and now we settled back for the first meal on the climb. As the shadows grew long we reluctantly gathered up our lunch scraps, took a last look around and plunged down the familiar route on the southeast side to Scree Col, then on to camp. Two hours of daylight remained, so we hastily broke camp and back-packed out, arriving at the car shortly after dark. We reached Montrose about midnight completely exhausted.

Of the five summits climbed during the four days sojourn, one, The Hand, we are certain was a first ascent. Two others, though there is some room for doubt, were probably first ascents. These are Cirque Mountain and Kismet. The route up the north face of Sneffels was the first one to be completed on that side of the mountain, and in completing it we made the first traverse of the peak. Teakettle Mountain was a second ascent as far as can be determined.[2]

---

[2] Teakettle was climbed in August, 1929, the entire party of four getting to the base of the final pinnacle. At this point a jar containing several names was found. Two members of the quartet then ascended the final pinnacle; there was no cairn on top nor did the two (Alonzo Hartman and Charles Rolfe) build one.

PROCEEDINGS OF THE CLUB

ANNUAL MEETING

The 30th Annual Meeting of the Club was held at the Hotel Winthrop, New York City, on January 21, 1933, at 2 P.M. President Schwab presided and thirty-one members were present. The minutes of the last meeting, the Secretary's report and the Treasurer's report were approved and ordered filed. The latter showed income of $2,482.00 and expenses of $1,676.94, making excess of income over expenses $805.06. Total assets as of December 31, 1932, were $17,152.47.

The reports of the following Standing Committees were presented and approved: *Publication*—Palmer; *Library*—Miss Buck; *House*—Beckwith; *Climbing Records*—Hall; *Finance*—Fisher.

Of the *Special Committees,* Waterman reported for the Auditing Committee, and Palmer for the Nominating Committee. Messrs. T. D. Cabot and W. O. Field were elected Councillors for a period of three years, replacing Messrs. Hainsworth and Fay whose terms expired. In order to comply with the laws of incorporation, a ballot was cast for the reelection of the existing officers. The Committee on Revision of the By-Laws reported that the proposed revisions had been mailed to members and would be voted on.

Memorials to members deceased during the year were read: Rand Herron, by Miss Knowlton; William E. Faulkner, by H. S. Hall; Henry G. Bryant, by J. M. Thorington.

President Schwab summarized Club activities for the year and proposed that cables be sent to Terris Moore and to the Mt. Everest Committee.

On vote the revisions of the By-Laws were unanimously adopted, a total of forty-six votes, including proxies, being recorded.

The meeting was adjourned at 3.35 P.M., and the following illustrated talks were given:

B. S. COMSTOCK: Views from Abruzzi's Expedition to K2 (Sella Collection).

H. S. HALL: Ascents in the Coast Range of British Columbia.

J. M. THORINGTON: Three Historic Peaks of the Eastern Alps (Glockner, Venediger, Ortler).

J. MONROE THORINGTON,
Secretary.

ANNUAL DINNER

One hundred and six members and guests attended the annual dinner at the Hotel Shelton on the evening of January 21st. The President and Mrs. Carl Akeley of the Entertainment Committee held a semi-formal reception commencing at seven o'clock. Dinner was served at seven-forty after the customary grace by Dr. Nichols. At nine o'clock the President briefly outlined the chief mountaineering events of 1932, and then the diners rose in respect to the memory of the deceased members, Allen Carpe, William E. Faulkner, Rand Herron, and Henry G. Bryant. The speaking began at nine-thirty-five with an hour's talk by Miss Elizabeth Knowlton on the "Nanga Parbat Expedition," and was followed by Dr. Strumia's account of the "First Ascent of Mt. Oubliette" with Mr. Hainsworth and Hans Fuhrer. Mr. Beckwith's "Carpe's Last Expedition" concluded the splendid program at midnight. All the talks were illustrated with fine slides or movies.

CLUB ACTIVITIES 1932-33

At meetings of the Council held on February 1st and April 2nd Colonel E. L. Strutt and M. Escarra were elected to honorary membership and Mr. H. F. Montagnier was appointed delegate to the International Congress on Alpinism held at Chamonix in August.

A new issue of the membership booklet of the Club appeared in June. It was prepared by Messrs. Henry S. Hall, Jr., and Kenneth A. Henderson.

The Council meeting of October 8th discussed the by-law changes recommended by the special committee and unanimously

voted the proposal of revisions submitted to all members in the Secretary's notice of December 20th. The Finance Committee was given power to negotiate a lease on new quarters at a rental not to exceed $1,000.00 per annum, and several weeks later it selected rooms at 140 East 46th Street, New York City, at a figure substantially under this limit.

On October 21st a number of the members living around San Francisco Bay held an interesting barbecue dinner and meeting at the Oakland home of Bestor Robinson.

Removal of the Club's effects to its new location was effected on November 15th and within two weeks thereafter the rooms were again substantially in order.

An informal dinner was held in the private dining room of the Restaurant Parisienne, 507 Lexington Avenue, on December 6th in honor of Alfred D. Lindley, who gave a modest and beautifully illustrated account of his ascent of Mt. McKinley with Erling Strom, Harry K. Liek and Grant Pearson. Forty-four members and guests attended.

At the Council meeting of January 21st the most important matter discussed was that of finance. While we have every reason to congratulate ourselves on the Club's situation to date, it is apparent that affairs will have to be managed very carefully and economically henceforth. The presidential appointment of Lawrence I. Grinnell as Assistant Secretary was confirmed.

At the annual meeting held in the private dining room of the Rotisserie Parisienne, 507 Lexington Avenue, New York, on January 21st, it was voted to send cables to the Alpine Club wishing the Mt. Everest Expedition success, and to Terris Moore congratulating him on his ascent of Minya Konka.

On March 9th twenty-eight members and several guests held a delightful gathering at the home of S. Prescott Fay in Boston, at which Terris Moore's account of his Minya Konka Expedition was the feature.

An informal gathering was held at the Rotisserie Parisienne in New York on the evening of March 10th. The thirty-six members and guests present heard Mr. Fritz Wiessner read a paper on the more technical aspects of the Nanga Parbat climb, illustrated with a great number of beautiful views.

It may be of interest to mention that twenty-four different persons have been actively identified with the work of the Club this past year, as officers, councillors and members of the important standing and special committees.

No account of the year's activities would be complete without acknowledgment of the splendid work done by the various committees: the Librarian, Miss Helen Buck, and her helpers, Mr. Beckwith's House and Entertainment Committee, and Mr. Fisher, Treasurer and Chairman of the Finance Committee.

THE BY-LAW REVISIONS

For years it had been apparent that the objects of the Club were no longer expressed by the old Article 2. While we continued to have the cultivation of mountain craft as a primary object, we could hardly say the same regarding the scientific exploration of high mountain elevations, and particularly of the region lying within the Arctic or Antarctic circles.

We do not now consider it our primary work to undertake the study of the high mountains of all America, and we long ago ceased to publish the series of monographs—*Alpina Americana*—of the mountains of the Western Hemisphere, as enjoined upon us by the old Article 2.

Indeed the present splendid publication, THE AMERICAN ALPINE JOURNAL, dedicated to mountains and mountaineering everywhere throughout the world, has existed under the provisions of the old Article 2, as a minor publication which this By-Law shall not be construed as restricting the Board of Directors from undertaking.

The new Article 2 expresses, we believe, fully yet simply the objects of the Club as we know them today: "The cultivation of mountain craft; the encouragement of mountain climbing and exploration; the promotion of good fellowship among climbers; and the dissemination of knowledge concerning mountains and mountaineering through its meetings, publications, and library."

Since the other changes are all in the nature of clarifications and rectifications, it is not necessary to comment on them.

HENRY B. DEV. SCHWAB.

REPORT OF THE LIBRARIAN

During the past year the Library Committee has catalogued the fine collection of books given by Mr. Montagnier in 1931, also the eighty additional books, magazines and pamphlets donated in 1932. The latter were contributed by Dr. Thorington, Mr. Schwab, Dr. Potter, Mr. Henderson, Mr. Palmer, Mrs. Carpe, Dr. Ladd, Mr. Hall and Mr. Williams. We wish to express to these donors our appreciation of their gifts.

The total number of books (including volumes in sets) now amounts to 1,297. English 521, German 334, French 315, Italian 85, Japanese 11, Dutch 8, Latin 6, Spanish 5, Norwegian 2.

We are indebted to Dr. Thorington for a beautifully executed relief model of the Athabasca River country in the Columbia Icefield area.

Since moving into our new quarters, the committee has rearranged the books according to a more detailed classification and labeled the shelves. Duplicate books have been placed on a separate shelf with a price-list and are on sale to members.

The 1932 scrap book is very complete and contains many interesting articles. The Librarian will welcome any mountaineering clippings sent by our distant members.

The chief work for the coming year will be the binding of the unbound books and magazines, arrangements for which are already under way.

I wish to express my appreciation of the labor and time given by the members of the committee in connection with the detail work of the library and also for the assistance of others who have helped us from time to time.

Respectfully submitted,

HELEN I. BUCK.

IN MEMORIAM

HENRY GRIER BRYANT
1859-1932

In the passing of Henry Grier Bryant on December 7, 1932, in Philadelphia, the American Alpine Club loses a former President and one who ever maintained a keen interest in its activities.

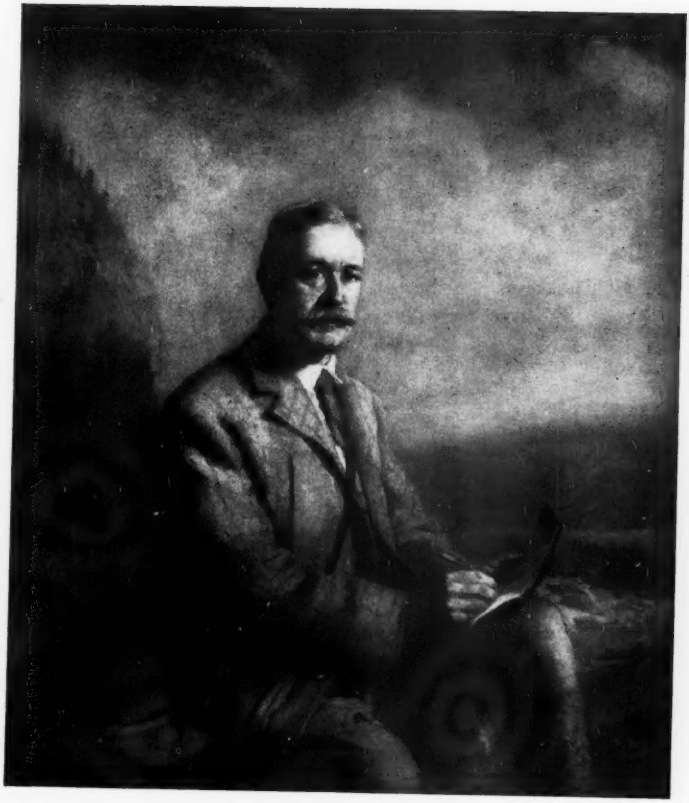
He was born in Allegheny, Pa., on November 7, 1859, a descendant of an old New England family. He prepared for college at Phillips Exeter Academy, and was graduated from Princeton in 1883. Becoming a member of the Philadelphia bar, he was not content to pursue his profession exclusively, his financial independence permitting him to gratify his ambition to visit and explore unfrequented places, to ascend mountains, to float on southern seas, to search the near and far north.

In 1891 he led an expedition to the Grand Falls of Labrador, and in the following year acted as second in command of the Peary relief expedition. In 1894 he commanded the auxiliary expedition which brought Peary back to this country, and in 1897 explored the St. Elias region, being the first to cross the Malaspina glacier.

He traveled extensively in Canada, and his early attempts to ascend Mt. Assiniboine are of historic interest to mountaineers. Turning his attention to the Far East, he visited Java and French Indo-China. In 1912 he organized an expedition to unknown southern Labrador, the results of which caused substantial revision of maps of that region. In 1915 he crossed the Andes.

A contributor to many scientific journals, he recorded his observations and discoveries relating to ethnology and geography. With Admiral Melville, he conducted the successful experiment of floating drift-casks to determine the speed and direction of circum-polar currents.

He was a founder, and for several terms president, of the Geographical Society of Philadelphia; a member of the American Philosophical Society; a fellow of the Royal Geographical Society; former president of the Association of American Geographers; corresponding member of the Geographical and Anthropological Society of Stockholm and of the Appalachian Mountain



HENRY GRIER BRYANT
1859-1932

Club; honorary member of the French Alpine Club, and an officer of the French Academy.

J. M. T.

To older members of the Club, the demise of Henry Bryant brings especial sorrow, for it is they, who, through long association, will recall most vividly his constant devotion to it. I believe that he attended all, or nearly all, of the meetings; thus he was known personally to most of our members. From the beginning he was ever a tower of strength and in the critical early years, when grave doubt existed whether interest in matters Alpine was sufficient to support a club, he, almost single-handed, kept the embers burning by his faithful performance of the duties of Secretary. For nine years, from the founding of the Club, he held this office (1902 to 1911). He then became Vice-President (1911 to 1914) and then President (1914 to 1917).

Although his personal tastes perhaps leaned more strongly towards the field of geographical exploration, he recognized the substantial additions to knowledge that result from organized mountaineering, and believed that the cause of science would be materially advanced by focusing the interests of Arctic explorers, glaciologists and mountaineers in one club. If the trend of events during the past quarter century has taken a different course, it has not impeached the essential soundness of the idea—as the present thriving condition of the Club bears witness.

Many milestones of our history were passed during his terms of office, being successfully engineered under his leadership: the incorporation of the Club in 1915, the creation of the library fund, the arrangement with the New York Public Library whereby our books were rendered more accessible and the use of a lecture hall secured for annual meetings and council meetings. The Bureau of Mountaineering Clubs was instituted at this time, and for ten years, under the management of the late Leroy Jeffers, it accomplished much useful work. Our important photographic collection was begun during this period.

Thus his influence was vital in the establishment of the Club and his memory will be held in warmest esteem by those of us who were associated with him.

H. P.

ELBRIDGE RAND HERRON
1902-1932

On October 13, 1932, Elbridge Rand Herron, returning from India with an expedition that had attempted Nanga Parbat, made a day's excursion to Cairo and climbed the Second Pyramid. He had done the difficult top part with intense enjoyment, and was running down the easy part, when his foot slipped on a loose pebble. He fell 300 feet, and was instantly killed.

Rand Herron had climbed almost entirely with Continentals, and had lived in this country only two years, but he always considered himself completely American. Actually, however, his American life and climbing were only beginning, and very little is known of him here.

He was born in Pegli, Italy, July 23, 1902. His parents were both American, his father, George Herron, a well-known Socialist and internationalist, his mother, Caroline Rand, daughter of the founder of the Rand School in New York. His childhood was spent in a beautiful old villa outside Florence, where his parents entertained freely and he had the opportunity of seeing many interesting and noted people. Here his brother was born, George Davis Herron, who survives him. When he was twelve, his mother died, and his father moved to a country place outside Geneva. There Rand went to school for eight years. They returned to Florence in time for him to enter the University, where he specialized in philosophy.

From his earliest youth, his main interests were music, his pursuit through all his life, and mountaineering. Owing to family complications, he was not able to begin climbing until his early twenties, but he always longed to do it. He covered the walls of his room with mountain pictures, and to him one of the greatest events of his boyhood was an ascent with his uncle of the Wellenkuppe.

In his seven climbing years before his death, he ranged far and wide. He climbed extensively and brilliantly in the Alps, generally guideless; leading many first ascents, holding a record as highest on the north face of the Grandes Jorasses, and doing some of the stiffest routes in the Kaisergebirge. He sampled the climbing in half the major and minor mountain ranges of Europe. He wandered alone to Corsica, and over Parnassus, and the five summits of Olympus, where he slept out for two nights. He

went with friends to the High Atlas in Morocco, and the mountains of Lapland in winter. In the Caucasus, he made a first ascent of Guilchi, and climbed other peaks. And last summer, as the one American climbing member of the German American Himalayan Expedition to Nanga Parbat, he was first on the mountain and last off it, and reached an altitude of over 22,000 feet.

Meanwhile, he did not neglect his music, but spent his winters studying in Vienna, Berlin, Rome and Moscow. In Berlin he perfected his German, which with English learned in the family, French in Geneva and Italian in Florence, gave him mastery of four languages, which he spoke absolutely interchangeably. He had a natural gift for languages, and was more or less at home in seven others.

In 1929 he came to America and settled in New York. Here he took up aviation and got his pilot's license. It was here also that he met Allen Carpe, whom he greatly admired. They found one another immediately congenial, and climbed together often on the Hudson.

It is hard to describe him, and not sound absurdly eulogistic. He had, to be sure, plenty of faults—most of which he would be the first to acknowledge. But he had also so many gifts and qualities not usually found in the same person.

The first impression he seemed to make on almost everyone was of youth—youth, shy, eager and enthusiastic. Behind his shyness soon showed great charm and lovable gaiety. He was a naturally happy person. His sense of fun was that of a nice child, teasing, and joking, and bubbling with laughter.

Of the many sides of his personality, perhaps most important was the artist, the passionate lover of beauty, and its creator. "Genius" is a word to be used only very carefully, but to all those who knew him at all intimately, he gave a definite impression of having at least a touch of the real thing. He wrote charming vivid Italian poetry, and had half completed a novel. He played with finished ease the piano, the organ, and the harpsichord, and improvised delightfully. His greatest gift of all was for musical composition, and musicians have said that he gave promise of becoming one of America's leading composers. Already some of his music has been played in Florence and in Moscow, and his "Cantata to the Sun" for full choir is probably to be sung in

California this spring. In every line he was tremendously ambitious, and with a capacity for hard intense work to back up his ambitions.

He had also a fine, flexible mind. It took hold of practical matters with an instant grasp, exploring and weighing possibilities, guarding against eventualities, planning minutely down to the smallest detail. More theoretical questions, social or political or esthetic, he considered always with warm live interest, with an eye for fundamental values and a balanced view of both sides. It was amusing to hear with what zest he would argue on either side of almost any question, for he was hotly intolerant of other's intolerance. In judgments that concerned himself, he kept generally the same cheerful objectivity and impartiality.

On our expedition last summer, he showed especially the active, practical and adventurous sides of his nature. He proved a "thoroughly sound man." He was always ready to do more than his share, always eager to push on, and as staunch and efficient as he was enthusiastic. Not only throughout the expedition, but throughout his life, he always, with serious thoughtfulness, took on every sort of responsibility. He seemed automatically to be the one who was counted on to attend to things, or to look after people; for he was reliable and considerate of others, and always most unbelievably kind. In all the strains and tensions of the summer, he remained sociable and good-tempered, and boyishly anxious to keep everything happy and friendly all round. *"Everybody* liked Rand," said a friend.

For myself, I have never seen anyone who lived more sensitively in every moment, good or bad, yet always with a fundamental serenity of acceptance, who loved life more, who put more into it, or got more out of it.

"After the first few moments," writes a climbing acquaintance, from India, "I realized that he was an exceptional man. That realization grew intense. . . . The gods appear to have treated harshly one possessing so finely tempered a spirit."

In his deep love of mountaineering, many sides of him were seen—the practical, the intellectual, the esthetic, the joyously adventurous. There was also a strain of romantic mysticism. "Although we climbers usually don't admit it," he wrote to Mrs. Carpe, "we are always more or less conscious that the strange and irresistible call of mountains is also a call toward the

end of life. And for that very reason we love them all the more, and find their call more sublime. Our secret heart's desire is that our end shall be on them." It seems the final irony of his short life, with all its broken promise, that he should have met the death he did.

E. K.

THE DUKE OF THE ABRUZZI
1873-1933

In the death of our Honorary Member, His Royal Highness Prince Luigi Amedeo Guiseppe Maria Ferdinando Francisco di Savoia-Aosta, Duke of the Abruzzi, one of the most romantic figures of our times has been lost, not only to the American Alpine Club, but to the world. Sailor, navigator, oceanographer, sea-fighter, polar explorer, big game hunter, topographer, land explorer, geologist, botanist, zoologist, financier and mountaineer, he has been one of the outstanding figures of our day.

Born of royal parents, apparently into the lap of luxury, one might have thought that the young man would become a dilettante and nothing more. Not so, however. From early youth he was given a strict schooling and drilled in the fundamentals of learning. Thus were shaped the building blocks which enabled him to construct a life of masterful adventure.

Certain of his accomplishments are well known, and neither space nor time now permit of more than an inadequate sketch of his remarkable career. The Prince, third son of Amedeo, Duke of Aosta, and Princess Marie del Pozzo della Cisterna, was born in Madrid January 29th, 1873. At the time of his birth his father was Amedeo I, King of Spain. Almost immediately his father lost the throne and was expelled from the country. His mother died when he was three. At six he became a cabin boy and attended the Naval College in Leghorn. At eleven he received his first instruction on a warship. At sixteen he cruised the shore of South America in the warship *Amerigo Vespucci* and at twenty commanded the gunboat *Volturno* on a punitive expedition to Somaliland. At twenty-one he started a cruise around the world in the *Christopher Columbus* which lasted two years. At thirty-one he made another world cruise for three years as commander of the ship *Liguria.* During this cruise he made extensive observations in oceanography. He visited the Jamestown Exposition in 1907 in command of the cruiser *Varese*

as an official representative of his country. He commanded a squadron in the Tripoli war. In 1913 he became fleet commander of the Italian Mediterranean forces and in 1914 commander-in-chief of the Italian Navy so that when Italy joined the Allies in 1915 he was the ranking officer in the Adriatic.

In the late months of 1915 he rescued 240,000 troops of the Serbian army from the coast of Dalmatia, whither they had been driven by the Austrians against the sea, and transferred them to Italy. This was one of his greatest feats and was accomplished under fire. He was in command at the first Italian attack of the Dardenelles.

In 1917 he gave up his naval command because of a disagreement with Admiral Thaon di Revel, his chief of staff. He was, however, nominated admiral in February, 1918. After the war he explored Abyssinia and Somaliland, organized sugar and fruit companies, and in 1932 became president of The Italian Steamship Company. In the latter years of his life he devoted much time to colonization efforts in Somaliland where he died at the village of Mogdishu on March 18th, 1933.

He was a Prince of the House of Savoy, Knight of the Order of the Annunziata, of the Seraphim and of the Black Eagle, a Senator of the Kingdom, and Harvard University conferred upon him the honorary degree of Doctor of Laws. Mussolini personally nominated him for membership in the Italian Royal Academy.

A career such as this indicates the possession of extraordinary talents. And his energy was indefatigable. In his leisure moments on duty he turned to the study of his avocations, and on his vacations and furloughs he put his plans for their accomplishment into effect.

Only his outstanding achievements in the field of mountaineering and polar exploration may be mentioned here. At the age of twenty-four he organized an expedition for the ascent of Mt. St. Elias which he accomplished. He named Mt. Bona. In 1899, in the ship *Stella Polare,* he undertook his North Pole expedition which went by way of Franz Joseph Land and spent the winter in Teplitz Bay. Frostbite kept the Duke at the base but his aide, Capt. Umberto Cagni went northward by sledge to Lat. 86° 33′, 239.15 miles from the pole, a new record, bettering Nansen's. He determined the north coast of Franz Joseph Land

and the non-existence of Petermann Land. In September, 1900, on account of injury to his ship, he was forced to return prematurely to Christiania. In 1906 he climbed Ruwenzori and named the twin summits Margherita and Alexandra. Perhaps his most remarkable expedition was that to the Karakoram in 1909. In this year also he climbed Mt. Kenya in Africa. On the Himalayan expedition he established a new altitude record for climbing on Bride Peak after several attempts on Mt. Godwin-Austen, then the famous K2, had failed. The altitude reached was 24,600 feet under extremely trying and dangerous weather and climbing conditions.

The Duke's expeditions were noted particularly for their completeness in equipment both of material and personnel—even to the point of luxury. The casual observer was not infrequently heard to remark that success was bound to come because of the richness of his resources. But those who have had experience in the field have realized too often that success is not attained merely by material and money.

He is spoken of with respect and admiration by Alaskans today. The following anecdote is told of his Mt. St. Elias expedition. In going in to Mt. St. Elias most of the work had to be done by back-packing, sleds being used for only part of the distance. The packers were chiefly lumbermen recruited from Seattle. Among them was a great bully. He became troublesome. There was only one of the packers who dared stand up to him but the bully refused to fight him, stating that he would not fight unless there was a purse in it. Whereupon the Duke handed the bully a purse and also a good thrashing with his own bare fists.

Perhaps most of the Duke's success in his expeditions was due to his training and character. He was a man among men. His years of apprenticeship in the naval ranks gave him a sympathy with and understanding of the point of view of the personnel he later commanded. An astute observer, he became a good picker of men. Much that he accomplished was due to the loyal support and the untiring efforts of those who accompanied him. His real affection and admiration for his companions was returned by them. Much of what he did has been given us by the accomplished pen of Filippo de Filippi, his historian, and by the remarkable photography of Vittorio Sella.

His expedition into the Karakoram might be taken as a model of organization. Although his resources were great, so were the difficulties—both of route and of terrain. On the inward journey, with a great caravan of 272 persons and ninety-five baggage ponies, they covered 293 miles in twenty-two days, lost not a single load of supplies, and maintained a cheerful, vigorous and enthusiastic outlook among the personnel. Only two porters deserted on the higher glacier work. The Duke was his own paymaster and used with effectiveness the brass check identification system for the porters.

His palace in Turin became a museum filled with the trophies of his sport and specimens of scientific value which he had collected. He was honored and beloved by its people and the medal which they voted him was among his most cherished possessions.

Among the publications which the Duke sponsored and took part in producing are: "The Ascent of Mount Saint Elias," 1900; "On the Pole Star in Arctic Seas," 1903; "Ruwenzori," 1908; "Karakoram and Western Himalaya," 1909; "Relations of the House of Savoy with the Court of England," 1932.

W. S. L.

BOOK REVIEWS

Alps and Men, by G. R. de Beer, 8 vo., 256 pages including bibliography and index, illustrated by xvi plates, twenty drawings and three maps. London: Edward Arnold, 1932. Price 16s. New York: Longmans, Green and Co. Price $5.00.

This volume forms the natural sequel to the author's "Early Travellers in the Alps," and covers the period 1750-1850. As is frankly admitted, it is a compiled book, a survey of alpine touring, dealing with the holiday-seekers who followed the growing fashion of visiting the Alps which became prevalent toward the close of the eighteenth century.

Mr. de Beer is, wisely, a disciple of Coolidge, best of modern historians. He does not hesitate to delve back into seventeenth century books, such as Merian's (1642) and Wagner's (1680, *not* 1684) in order to trace the sources of the tourist movement. The French Revolution played no small part in driving celebrities to Switzerland, and travellers followed in their path. De Saussure, Gibbon, Voltaire and Rousseau were personalities that attracted many to the Lake of Geneva. Mont Blanc in the distance did the rest. Gray, Owen, Coxe, the Beaufoys, Greville (driving across the St. Gotthard), and Miss Williams, were among the notable English wanderers before 1800.

The mountain campaigns of the Napoleonic Wars are a bit complicated for the average reader, but the author's chapters dealing with Lecourbe and Suvorof ably depict the surprisingly widespread character of these operations, extending as they did, across Switzerland into the heart of the Eastern Alps. It is interesting that, during unsettled times, there was yet a persistent developing Alpinism. This was not only apparent in the Mont Blanc area, but in the Oberland, where we follow the activities of the courageous Meyers, and note happily that the author leaves Coolidge for the moment in order to agree with Farrar's researches as to the first ascent of the Finsteraarhorn. We hear of Placidus à Spescha, pursuing his climbing in the groups near Disentis, although his ascent of Piz Aul, according to Coolidge, was in 1801

and not in 1792. De Beer is, apparently, less familiar with events transpiring in the Eastern Alps, and fails to mention the parallel movement which there led to such achievements as the ascents of the Glockner and Ortler.

Dolomieu (who went far from home to discover a type of rock that was almost at his doorstep), Shelley, and Byron were among the first tourists of the nineteenth century. Dumas further popularized travel with his *Impressions de Voyage*. The scientists came—Agassiz, Forbes and Tyndall—and Rodolphe Toepffer made the Alps safe for schoolboys.

The flowing tide continues; we follow Simond, Raoul-Rochette, Wordsworth, Bakewell, Brockedon and others, to mention but a few. Brockedon's fine self-portrait, in the Uffizi, is reproduced and it would be interesting to have for comparison the water-colour sketch by Clift now in the collection of the University of Geneva. In 1824 we find Brockedon accompanied by Clarkson Stanfield, just as, twenty-seven years later, another contemporary scenic artist, William Beverley, travelled with Albert Smith.

We cannot agree with the author as to the possible Arabic origin of certain place names (p. 123) in the Pennine Alps, as Coolidge clearly showed them to be due to Italian rather than Saracen influence.

The Englishman at Zermatt in 1851 mentioned (p. 182) by Englehard as Sir Robert Peel could only have been the third baronet (who caroused at Chamonix the same summer while Albert Smith's party was ascending Mont Blanc), his distinguished father having died in the preceding year.

Last of all we learn of the wanderings of composers, of Mendelssohn, writing waltzes for the peasant girls, of Liszt and George Sand; and of Wagner, who found in the alp-horn the signal note for Isolde's ship, and in the bird songs of the Sihl valley the inspiration of the forest scene of Siegfried.

An excellent biography and index completes the book, which remains a volume for reference rather than for continuous reading. The difference in price of the book in New York and in London, at present exchange rates, is surprising.

J. M. T.

Le Centenaire des Postes Alpestres Suisses. 4 to. Geneva: "L'Art en Suisse," 1932. Price Fr. 6.

This attractive volume, also issued with English text, has been published by the Department of Posts and Telegraphs of Switzerland. It is well illustrated, with color-plates by such artists as d'Elzingre and F. Gos, and reproductions of old prints and interesting documents, tracing the evolution of Swiss postal services across the Alps during the past century. One reads the diverting story of Greville, the Englishman, who conquered the St. Gothard in a fiacre in the good old days of the eighteenth century when the passes were first coming into use as routes of despatch. The history of the federal diligences is traced from 1850 to 1920, following which the thesis is maintained that "the postal-motors are brutes created and nourished by the mountains." A chapter is devoted to the perennial struggle with snow, and full statistical tables are witnesses of progress in the opening of routes.

J. M. T.

Sous l'oeil des choucas . . . ou les plaisirs de l'Alpinisme. Eighty plates by Samivel, with foreword by Guido Rey. 4 to. Paris: Delagrave, 1933. Price Fr. 25.

The pleasures of Alpinism depicted by Samivel, with a foreword by Guido Rey, makes a book that should not be read in hospital after an abdominal operation, unless the patient's incision has been properly reenforced by pitons and crafty girdings of the rope. For side-splitting it is, and may this serve as due warning.

Two zones of elevation are recognized—the inferior, or that of the telescope; and the superior, that of the jack-daw—in each of which epochal events transpire; possibly, one should say, perspire.

From the lower zone no specimen of humanity is barred, for even a pathetic little old gentleman with an umbrella may gaze upon the Matterhorn. Picnic parties risk their lives for edelweiss, and aerial passengers of the téléférique thumb their noses at the burdened climber on so-called terra-firma below.

But, in the zone of the jack-daw, the cragsman is supreme. Free he is to ponder on the doubtful delights of moraines, and to

contemplate in crowded huts the paradox of pressure increasing with elevation. The climbing technique exhibited is as fantastic as was ever condemned by the solons of an Alpine Club, but hazards appear which even gymnasts of the death-defying school have scarcely considered. Who, for instance, has previously recorded being caught on a glacier whose advance was equal to climber's progress, trapping one on an icy treadmill?

True, there are experiences which smack of reality and rouse poignant memories. There is the vertiginous peak on which those hairbreath pals, Samovar and Baculot, lose their way because a page of their guidebook is missing; and the slender spire with a sardine-tin poised upon the topmost block as they take the last step of a supposed first-ascent. It keeps one jittering.

Following all this, more intimate portraits present typical specimens of Alpine fauna—the "North-Face Alpinist," with impressive, nay, monumental (they are proportionately the size of Grant's tomb) climbing-irons; the "Alpinist Nearly-Exhausted," who, for twenty years, has threatened to spend next season at the seashore; the "Alpinist La-La-Itou," who almost displaces the gravity centres of adjacent aiguilles by the resounding echoes; and, last but not least, that lightning type, never seen —known only by widely spaced tracks in the snow—the "Chronometric Alpinist," who receives no impressions save through his time-piece.

Finally, we are given a survey of Alpinism through the ages: from the glacial period to Noah and Ararat, with excerpts from mythology and the medieval, down to the romantic days when "sublime horrors" set the note. But Samivel crosses present time, with television offering a celebrated virtuoso interpreting the first movement of the fissure-in-Z, and explores realms of the future, with a single note of sadness: when all that is left of Alpinism is a row of lonely, deserted needles, with here and there a broken iron or a can protruding from the desolation.

A dangerous book for a dollar, my boys!

J. M. T.

VARIOUS NOTES

Early Chapters in the History of Mt. McKinley

The great explorer-navigator George Vancouver in 1794 sailed up Cook's Inlet and saw "stupendous snow mountains covered with snow and apparently detached from each other." This is the first written record concerning the greatest mountain on the North American continent, known for many years to the Russians as "Bolshaia Gora," meaning Big Mountain.

In 1878 the mountain was reported by the Alaskan traders Arthur Harper and Alfred Mayo; the chief interest of which is that the former was the father of Walter Harper, who as a member of Archdeacon Stuck's party was the first man to set foot on the actual summit of the mountain.

In 1889 a prospector, Frank Densmore, travelled from Nenana on the northeast to the Kuskoquim River on the southwest across the foothills of the range.

However, it was not until 1896 that the mountain was brought to the attention of the public. In that year W. A. Dickey, a Princeton graduate approached the range from the south, and on his return wrote an account of his trip for the "New York Sun," naming the peak "Mount McKinley," unaware that it was known to the natives as "Denali."

Robert Muldrow and George Eldridge of the United States Geological Survey in 1898 calculated the height of Mount McKinley as 20,300 feet.

The first whites known to have set foot on the slopes of the mountain were Alfred H. Brooks and D. L. Raeburn, who in 1902 journeyed along the northwest foot of the range.

In May, 1903 Judge Wickersham and four men ascended the Kantishna from Fairbanks and attacked Mount McKinley by the Peters glacier on the west, being defeated by the cliffs of the North Peak. Shortly thereafter Frederick Cook with three companions approached by pack-train from Cook's Inlet, crossed the range southwest of the mountain and made an attack from near that point, being defeated at an elevation of 8,000 feet. They then continued around northeastward to the Peters glacier where they found the Judge's camp site. An attempt from here was likewise futile. However Cook rightly deduced that the practicable route to the summit would be "by the glacier that comes from the gap between the north and south summits, which glacier can only be reached from the Muldrow glacier." Yet when they crossed the

snout of the Muldrow on their way out via Harper Pass, he apparently did not recognize it as such.

The year 1906 added the first chapter of prime importance. Starting in May, Prof. Herschel C. Parker, Belmore Browne, Dr. Frederick A. Cook and W. R. Russell with the photographer Walter Miller and the packers Fred Printz and Edward Barrill went up the Sushitna and its tributary the Yentna by launch, thence across to the headwaters of the Tokositna by pack-train. No feasible route up Mount McKinley could be located however, and the party returned to Cook's Inlet where it broke up. Shortly thereafter Doctor Cook went off with the packer Barrill to the Tokositna and the glacier at its head which he named the "Ruth Glacier." On his return a few weeks later he announced that they had ascended Mount McKinley. Parker and Browne knew better, and many another was skeptical, but before Doctor Cook's book "To the Top of the Continent" appeared and accusations could be made, he had departed secretly for the North, whence he emerged in 1909 with his colossal polar hoax that brought about world-wide controversy and his downfall.

Alaskans familiar with the range were among the strongest doubters of Doctor Cook's story. The result was an expedition by the "sourdoughs" Thomas Lloyd, Charles McGonogill, William Taylor and Peter Anderson, who started in February, 1910 from Fairbanks by dog-team and reached Cache Creek via the Kantishna and Clearwater river bottoms. From this base camp they got onto the Muldrow glacier by an easy pass which they named McPhee, but which is now known as McGonogill (McGonigal or McGonnigle?). By March 25th they had carried their camp forward by dog-team to the head of the Muldrow where Lloyd remained. On April 10th Taylor, Anderson and McGonogill ascended the ridge, unroped and each man for himself, to the "Grand Basin," whence Taylor and Anderson climbed the North Peak of Mount McKinley and planted a pole on or close to the top.[1] Misstatements and discrepancies in published accounts led to some doubts concerning their success, but the pole was seen by Archdeacon Stuck in 1913 apparently on the top. No sign of it was seen by the Liek-Lindley party of 1932, when they ascended this peak, as well as the South Peak, the culmination of the mountain.

A little later in the same year (1910), Herschel Parker, Belmore Browne, John H. Cuntz, Merl LaVoy, Waldemar Grassi, H. L. Tucker, J. W. Tucker and Arthur Aten left Sushitna Station by launch and ascended the Sushitna, Chulitna and Tokositna rivers. From a base camp thirty-seven and a half miles from

[1] This ascent from a 12,000-foot camp to 20,000 feet in a single spurt, carrying a 14-foot flagpole, is surely one of the most extraordinary feats in the history of mountaineering.—*Ed.*

Mount McKinley, Parker, Browne, Cuntz and Tucker ascended "Ruth Glacier" and were able to duplicate Cook's alleged photographs of the top of Mount McKinley, thus proving the fake beyond cavil. In July with LaVoy added, they then advanced into the upper basin of the glacier, but after a long struggle they could find no way onto the mountain or practicable col across the divide. Their highest point was 10,300 feet on the southwest ridge. The retreat was made by the route in.

Still another onslaught was commenced on February 19th, 1912 by Parker, Browne, LaVoy and Aten. Starting from Sushitna Station by dog-team they journeyed up the Sushitna, Chulitna and Tokositna rivers, crossed the range on April 10th after a seventeen-day struggle on the ice, and descended to the McKinley fork of the Kantishna, whence they proceeded to the Clearwater and established base camp on a little tributary, now called "Cache Creek," on April 24th. The final advance from the head of the Muldrow glacier was not commenced until June 5th by Parker, Browne and LaVoy. Successive camps were established at 11,800 feet on the col, 13,600 feet on the ridge, 15,000 feet at the gateway to the Big Basin, 16,000 feet and 16,615 feet. From the latter, two successive attempts were made on the South Peak, the first narrowly missing complete success when they were stopped by a severe storm only a few hundred feet from the highest point in distance and probably very close to an equal altitude. Lack of eatable food—their pemmican having proved indigestible—precluded their remaining longer for further attacks, and the retreat was begun at once. Two days after the return to base camp, occurred the great earthquake of July 6th which shattered the northeast ridge. Civilization was regained by way of the Tanana and Yukon rivers.

Although Mount McKinley had been conquered, there remained the necessity of someone standing upon the highest point before an actual first ascent could be claimed. On March 17th, 1913, Archdeacon Hudson Stuck, Harry P. Karstens, Robert G. Tatum, the half-breed Walter Harper, and an Indian boy started from Nenana with dog-sleds for the Cache Creek base camp where they arrived on April 10th. Freighting to the head of the Muldrow glacier took them until May 9th. The great northeast (Karstens) ridge was found to be so riven and shattered by the earthquake of the year previous, that it required three weeks of step-cutting before they could establish camp at the gateway to the "Grand Basin," which point they called "Parker Pass." Further camps were made in the "Grand Basin": on June 3rd at 16,500 feet; on June 5th at 17,500 feet; and on June 6th, at 18,000 feet. From the latter the South and highest summit of Mount McKinley

was ascended on June 7th by Stuck, Karstens, Tatum and Harper, the party being favored with clear weather and good conditions. On the 8th they retreated to their camp at the head of the Muldrow, and on the 9th arrived back at base camp, whence they returned by boat on the Kantishna, Tanana and Yukon rivers to Tanana.[2]

HENRY B. DE V. SCHWAB.

MEMORIAL TO DR. PACCARD

At the International Congress of Alpinism, held in Chamonix during August, 1932, there was unveiled a bronze portrait medallion of Dr. Michel Gabriel Paccard, who, in company with Jacques Balmat, made the first ascent of Mont Blanc, in 1786.

The project was instigated by several American members of the French Alpine Club, and while it never became official business of the American Alpine Club, the following members contributed: Burr, Comstock, Gilmour, Hall, Hickson, Ladd, Linton, Mallinckrodt, Montagnier, Schwab, Thorington and Waterman. Unofficial contributions were also made by the A. C., S. A. C. and C. A. I., the C. A. F. making up the small balance required.

Arrangements were in the hands of Mr. H. F. Montagnier, who represented the American Alpine Club at the Congress. The medallion was executed by the French sculptor, Paul Sylvestre, and cast by the firm of M. Susses frères, of Paris. The design is based on the youthful profile portrait by Bacler d'Albe.

The placing of this tablet on the wall of the *Hotel de Ville* at Chamonix does belated justice to Dr. Paccard, whose cooperation in the ascent was overshadowed by Balmat's attempt, abetted by Bourrit, to secure all credit for himself; and by the twisted publicity given later by press-agent Alexandre Dumas. The controversy carried on by Alpine historians for over a century was ably summarized in Dübi's *Paccard wider Balmat*, in which the doctor is placed on an equal footing with the peasant in achieving the conquest of the great mountain.

Balmat is already commemorated at Chamonix: by the medallion before the churchyard, and by the statue in which he is pointing the way to de Saussure.

At the Paccard celebration, on August 28th, the official unveiling took place before the Mayor of Chamonix; General Dosse, Governor of Lyon, and commanding the 14th Army Corps; M. Raymond de Saussure; the 7th Battalion of *Chasseurs Alpins;* and a large gathering of delegates and spectators. H. E. Signor

[2] Sources: "The Conquest of Mt. McKinley," by Belmore Browne and "The Ascent of Denali," by Hudson Stuck.

Bobba, representing the C. A. I. opened the proceedings, and was followed by Dr. Dübi, for the S. A. C.; M. Escarra, President of the C. A. F.; and the Mayor of Chamonix, the latter announcing that the street of Chamonix, leading toward Les Bossons had been named *Rue du Docteur Paccard.*

Thus an enduring and untruthful legend is laid at rest.

J. M. T.

*

The Watch Tower

(*Canadian Rockies*)

First ascent by R. S. Whitney, J. A. Corry, and B. B. Gilman on August 3rd and 4th, 1932. This rock pinnacle rises sharply above Cataract Brook on the east side of the valley leading from Hector, B.C., in to Lake O'Hara. It is really the western tip of a mountain ridge running westerly from Mt. Collier, but is cut off from the rest of the rather level ridge by a deep chasm. It can be reached in about two hours and a half from either Wapta or Lake O'Hara bungalow camp. After leaving the Cataract Brook bridle path, about three-fourths of an hour's struggle through fallen burned timber leads the climber to the valley on the north side of the Watch Tower.

The ascent was made from the saddle on the east of the Watch Tower over a shoulder which leans against the main peak and terminates in a platform a little more than half way up. Just below this, the party had to traverse into a chimney between the shoulder and the tower and work upwards for twenty feet by the back-and-knee method. Above the platform they encountered a twenty-foot overhang. Here an hour was occupied in lassoing a projecting rock spike, after which a rain storm forced a retreat to Lake O'Hara. The next day the assault was continued and the summit reached after some strenuous and spectacular rock climbing. Whitney worked out the route and led the difficult pitches with great skill.

Our times on the two days which the climb took were about as follows: August 3rd: left Lake O'Hara 9:30, arrived saddle (base of rocks) one o'clock. Roped and left saddle two o'clock, arrived platform below overhang, three o'clock. Top of overhang 4:30, then down in light rain, reaching saddle 5:30 and back to Lake O'Hara 7:45. On August 4th we left Lake O'Hara at 8:55. Left the Cataract Brook trail at 10:10. Reached the saddle at 11:45. Left it and started climbing at 12:30, reaching the platform at one o'clock. Above the overhang at 1:25. On the summit at 2:15. We were back to the saddle at five o'clock, on the Cataract Brook trail at 5:50 and at O'Hara at seven.

Bradley B. Gilman.

Mt. Columbia—the Problem of the West Face

The west face of Mt. Columbia has seldom been observed or photographed from near viewpoints. During the month of July, 1931, Messrs. Cromwell, Spadavecchia and the writer were in the Athabaska valley[1] and examined this face from the pass immediately west of Mt. King Edward. Weather conditions precluded almost all high climbing, and any thought of an attempt on it was out of the question; but a statement of the main features of the problem may be of interest.

The best and easiest approach to the face is by way of the west terminal fork of the Athabaska (5,000 ft.) and the watershed snow pass (8,450 ft.) west of Mt. King Edward. Gradually rising snow-slopes lead thence to the east for three miles, skirting the southern side of Mt. King Edward to the col (9,150 ft.) between this mountain and Mt. Columbia. Precipices and ice-terraces absolutely preclude any more direct northern route from the Athabaska valley to this point. The total distance from the western fork, by the route suggested, is six miles, and may be easily covered in less than four hours.

The west face of Mt. Columbia at the 9,000-foot level is about one mile wide, and the vertical elevation to the summit roughly 3,000 feet. Spadavecchia estimates the angle of this face at not over 40 degrees. One will have a better understanding of this by examining photos of the mountain as seen from the north, in which this face then forms the right profile[2].

When we first saw the face it was snow-covered. A week later, from the northeast, in the vicinity of Sundial Pk., the snow had diminished considerably, and rock was showing through all parts of the face except in the very highest portions. The snow coating appeared thin and tended to melt and run off; we never saw avalanches. The face is comparatively smooth, without large couloirs, and is crossed horizontally in its upper 500 feet by four or five narrow strata of black rocks, broken by small chimneys of comfortable width. The line of least slope is toward the southern side of the face, near the buttress by which recent ascents of the mountain have been made from the Columbia icefield. Traverses in this direction would be possible. An ascent of this face, while longer by a considerable margin than Fynn's route on the northeast wall of Mt. Victoria,[3] will nowhere encounter slopes as steep as the steepest portions of the latter. It has the disadvantage, in comparison, that the Columbia face must be descended. Once

---

[1] *App.* x, 28 *C. A. J.* xx, 30.

[2] One should consult the following illustrations: *App.* x (frontis); *A. J.* xxxv (facing 184); xxxvii (facing 305); *C. A. J.* (facing 34).

[3] *A. J.* xxxiv, 475; *C. A. J.* xiii, 257.

down the face, there will be no cause for benightment by anything below the 9,000-foot contour.

Patience, a study of the snow, and good weather are essential; but Mt. Columbia is a citadel worthy of siege, and its west face offers one of the grandest expeditions that can be traced on any of the four 12,000-foot peaks of the Canadian Rockies.

J. M. T.

♠

Southwestern Colorado Climbing Notes—1932

The San Juan Mountains of southwestern Colorado were, during the 1932 season, the scene of considerable climbing activity. First, a party, members of a small, informal club called the "San Juan Mountaineers," spent four climbing days in the Mount Sneffels region. Then simultaneously two districts were visited in the southwestern part of the State. Perhaps the most important were the accomplishments of a party of two in the Grenadier Range: this was the first time that climbers have ever entered the Grenadiers. Lastly, the Colorado Mountain Club held its twentieth annual outing in the Ice Lake region. The ascents accomplished by these parties are listed below; also a few made by others.

Curricanti Needle (*7,900 ft.*). A group under the leadership of Tony Ronzio, and including George Pond, Gordon Williams, Wm. Macomber, Don Bingham, and Frank Ronzio accomplished the ascent of the difficult southeast face of this needle which is situated in the Black Canyon of the Gunison River.

Echo Point, a rocky island, located on the end of an arm extending into the Black Canyon, was finally gained by T. M. Griffiths, Charles Kane, Gordon Williams, and Wm. Macomber. It had been attempted many times before without success.

MT. SNEFFELS REGION

The *Aiguille Hand* (*13,150 ft.*) was the first of the Sneffels' needles to be climbed. T. M. Griffiths (leader), Gordon Williams, and the writer made the ascent. The last 100 feet were quite difficult.

The easy ascent of *Cirque Mountain* (*13,650 ft.*) was first made by Gordon Williams, T. M. Griffiths, and the writer. The climb was made from Dike Col up the southwest ridge.

The *Aiguille Kismet* (*13,650 ft.*) was ascended from camp in Blaine Basin, to the north of Sneffels, via Dike Col and the east ridge to the southeastern base of the final pinnacle. The climb (not difficult) was finished directly from this point to the top. The climbers were Gordon Williams, T. M. Griffiths, and the

writer (leader). No signs of a previous ascent were found on the summit.

T. M. Griffiths and the writer, with Gordon Williams leading, made the second ascent of *Teakettle Mountain* (*13,725 ft.*) a beautiful peak east of Cirque Mt. It was not particularly difficult, except for the last 600 feet. The peak has an excellent summit, and it is very solid in comparison to the rest of the mountain. The first ascent to the top of the final pinnacle was made in August, 1929 by Alonzo Hartman and Charles Rolfe. This pair found a jar containing several names at the base of the pinnacle, but no indication was given that the actual summit was gained, nor was there a cairn on top. Neither Hartman nor Rolfe left a cairn, using the jar to leave their record in. This was not found by the climbers in 1932, which caused this party to believe they had made the first ascent. It was not until several months later that this erroneous belief was corrected by Rolfe with picture proofs.

T. M. Griffiths, Gordon Williams, and the writer, alternating the lead, made the first complete ascent of the north face of *Mount Sneffels* (*14,143 ft.*). The right couloir of the north face was followed to its junction with the northwest couloir, the latter being followed to its end, then the summit cliffs were taken directly to the top. Seven hours were required for the ascent which was almost entirely done on snow. The descent over the usual southeast face route resolved the climb into the first traverse of the peak.

The older partial route up the north face of Sneffels was modified by Dave Lavender, Miss Martha Bloom, and the writer (leader). This route covers the left couloir of the north face, is followed by an easy traverse of the east face just under the start of the east arête, and is finished up the last 800 feet along the southeast face route.

GRENADIER REGION

Point Pun (*13,100 ft.*), a little summit near the western end of the Grenadier Range, was first ascended by Carleton Long and John Nelson.

Arrow Peak (*13,810 ft.*) was the major climb of the season. Carleton Long, leading, and John Nelson performed it in twelve hours from Ten-mile Creek. This is one of the finest expeditions in the San Juans, and was the first of the Grenadier Range's principal peaks to be climbed. Messrs. Long and Nelson are to be congratulated for accomplishing its ascent. The rock of the Grenadiers is a firm quartzite, and is very pleasing to work on. (*Trail and Timberline*, Nov., 1932, p. 155.)

Heiss-Spitz (*13,251 ft.*) was the next first ascent accomplished by Messrs. Long and Nelson. This mountain is not in the

Grenadier Range proper—it lies to the south across the valley of Ten-mile Creek. Its ascent was not particularly difficult.

ICE LAKE REGION

The first climb on the Colorado Mountain Club outing for 1932 was that of *Pilot Knob (13,750 ft.)*. Messrs. Charles Kendrick, Scott, Dave Lavender, Giesecke, and the writer (leader) established a new route up the final cliff on the west face just around from the north end of the peak. This upper cliff is only a little over 200 feet high, but the last 40 feet, necessitated the use of a piton. On another occasion Pilot Knob was descended, *en rappel,* over the east face, by Father H. M. Walters, Charles Kendrick, and the writer, after an ascent of the lower (southern) summit followed by an equally easy traverse of the ridge to the high summit.

U. S. Grant Peak (13,692 ft.) offered a first ascent to a party of eight under the leadership of Father H. M. Walters. The ascent along the southwest ridge was not very difficult.

The northeast arête of *Vermilion Peak (13,870 ft.)* was done by L. Giesecke and the writer. This climb (not very long) is rather nasty because of the loose rock encountered.

Bob Scott and L. Giesecke made the first ascent of the peak *V 4 (13,500 ft.)*. This was not a difficult climb.

North Summit (13,500 ft.), the northern summit of the South Lookout group, was attempted by Charles Kendrick, Bob Scott, and the writer. This climb failed about 30 feet from the summit because of bad weather and lack of time. The climb was difficult; three pitons were used on the last 80 feet that were ascended.

Rolling Mountain's lower summit *(13,600 ft.)* was first done by Miss Martha Bloom and Dave Lavender.

An easy first ascent of peak *V 5 (13,200 ft.)* was made by L. Giesecke and the writer.

The numerous aiguilles of the Saint Sophia Ridge were visited by several members of the San Juan Mountaineers. The entire length of the ridge was traversed along the base of the pinnacles. None of them was ascended, but many will offer extremely good climbing if one will disregard the frequent outcroppings of loose rock. While a few of the points may be unclimbable, others, among the more solid of the lot, should go. At any rate the ridge is worth visiting.

DWIGHT G. LAVENDER.

TETON NOTES—1932

Despite reduced travel to the park, thirty-nine ascents were made. The earliest was on June 23 (Prospectors Mountain), the latest on September 18 (Veiled Peak), and twenty-one out

of the thirty-nine were made in August. Climbs were distributed as follows:

Major peaks: Grand Teton, fourteen ascents; Middle Teton, South Teton, and Teewinot each three; Nez Percé and Mt. Woodring each two; Mt. Owen, Mt. St. John, and Mt. Moran each one. Thus Buck Mountain and Mt. Wister were the only major peaks not climbed.

Minor peaks: Rockchuck Peak, two ascents; Cloudveil Dome, Disappointment Peak, Storm Point, Symmetry Spire, Prospectors Mountain, Veiled Peak, and Eagles Rest each one ascent. The three peaks last mentioned, climbed by Phil Smith and various companions, involved (so far as known) the only first ascents.

For the most, climbers kept to established routes. However, the following ascents deserve mention: (1) first traverse from the west of Mt. Owen, by Ed. Woolf and Paul Petzoldt (July 28); (2) first traverse from the east of Mt. Woodring, by Phil Smith and William Rea (July 31); (3) solo ascents of the Middle and South Tetons, Cloudveil Dome, and Nez Percé, all in the same day (August 5) by Fred Ayres.

On the Grand Teton three of the fourteen ascents were by the southwest ridge route; the rest by the traditional route from the west. Paul Petzoldt and Glenn Exum served as guides for all but five of these parties.

FRITIOF FRYXELL.

♣

Nanda Devi: Mr. Hugh Ruttledge, with the guide, Emile Rey, of Courmayeur and six Sherpa porters spent the early part of the summer of 1932 in an attempt to reach the summit of this, the highest mountain in the British Empire, but obtained only a fifteen-minute glimpse of his objective. The party tried to approach by way of the Sunderdhunga valley and the col at its head but were stopped by a sheer 6,000-foot avalanche-swept wall of rock and ice. Ascending the Pindari valley, they attempted the ascent of a 21,624-foot peak at its head to obtain a view of Nanda Devi, and from a point about 3,000 feet below the top of this peak obtained a brief glimpse of the object of their quest through the clouds.

♣

Mt. Everest: A new English expedition to climb this mountain is now under way. Led by H. Ruttledge, the expedition is composed of: C. G. Crawford, Captain E. St.J. Birnie, Major Hugh Boustead, P. Wyn-Harris, Dr. C. R. Greene, Dr. W. W. McLean, J. L. Longland, E. E. Shipton, E. O. Shebbeare, F. S. Smythe, G. Wood-Johnson, T. Brocklebank, and L. R. Wager. Our heartiest wishes for success go forth to these climbers!

Garmo: A Russian expedition under the leadership of Nikolai Vasilevich Krylenko returned late in October after an unsuccessful attempt to climb this, the highest peak in the Russian dominions. They were unable to find a feasible route for a close approach to the peak but claimed to have climbed the next highest summit in the Seltau Range, *ca.* 22,000 feet. Another group of this same party explored the valleys on the north side of the Peter the Great Range.

♣

Caucasus: The Proletarski Turist has built a large hut on the route to the Dongusorun Pass, and two huts on Elbruz at 13,800 and 17,400 feet are contemplated.

♣

Andes: The German expedition to the Cordillera Blanca of Peru has resulted in, beside the scientific and mapping work accomplished, the first ascent of the south (highest) peak of Huascaran (22,182 ft.), on July 20, 1932, by Dr. Bernard, Phillip Borchers, Erwin Hein, Hermann Hörlin, and Erwin Schneider. Shopi Kalki (*ca.* 21,500 ft.) was ascended August 3rd, and later Hein and Schneider accomplished the ascent of Artison Raju (*ca.* 20,300 ft.) on August 19th, and of Huandoy (*ca.* 21,000 ft.). On the return journey to Germany, which was made by way of Chile and Argentina, Herren Borchers and Schneider with Albrecht Maass of Santiago de Chile climbed Aconcagua (23,080 ft.), the highest elevation in the Western Hemisphere, reaching the summit on November 4th. Herr Maass with a party of four from Santiago had earlier in the year, March 23rd, accomplished the first ascent of Cerro Cortaderas (*ca.* 17,000 ft.).

♣

Mt. Crillon: Mr. H. B. Washburn, Jr., who attacked this mountain after abandoning the idea of an attempt on Mt. Fairweather because of the impossibility of landing an airplane on the lake at the foot of the Fairweather glacier, owing to the large number of icebergs in it, reports that his attempt was frustrated by bad weather. Much time was spent in three attempts to find the proper approach to the mountain and in obtaining an airplane from Juneau for the transport of supplies. When finally in position for the attack, a prolonged spell of rainy weather compelled a retreat, lest the snow bridges be completely melted out, and the time left at his disposal was insufficient to renew it.

♣

Pilot Peak: This spectacular rock pinnacle near Cook City, Montana, was climbed in July, 1932, for the first time by Harry Mitchell, Robert McKenzie, and Hollis Mees.

F. I. Ski Races, Innsbrück: Two of our members, Messrs. Alfred Lindley and Norman Read who spent a part of the winter skiing in the Alps took part in these races. In a field of 184 entries in the Special Downhill Race held over the nine-mile-long Glungezer Run they came in 29th and 51st, respectively. The times were 22:23.06 and 23:45, which compare with the best time of 18:05.6 made by Hans Hauser of Austria.

♣

Radio: The craze for sensationalism in radio broadcasting goes on unabated and has now seized upon the mountains for a new field of operations. The past year has marked broadcasts from two summits, whose sole *raison d'être* appears to have been to offer to the ever insatiable public a new thrill in its search for vicarious sensationalism. On June 15, 1932, the summit of Mont Blanc was to be heard appealing to the world through the ether, and five months later, November 15th, the performance was repeated from Pikes Peak.

♣

Pyrenees: The mountains have again disgorged a victim. The remains of the guide, Pierre Barrau, who fell into the bergschrund of the Maladetta glacier on August 11, 1824, were found August 13, 1933, at the foot of the glacier, the rate of travel being 4,580 feet in 107 years.

♣

Ruwenzori: The Belgian expedition to this range this past summer found very favorable weather, having had several fairly clear days, and as a consequence were able to draw an accurate map and determine the altitudes of the peaks. A number of ascents were made and some very fine photographs obtained. On June 3rd, 1932, Moebius, 16,154 feet, was climbed by Count Xavier de Hemricourt de Grunne and Jean de la Vallée-Poussin from the west. On July 13th, X. de Grunne, P. Solvay, W. J. Ganshof van der Meersch, H. de Schryver, with Joseph Georges of Evolena ascended the Punta Margherita, 16,810 feet, by a new route up the Alexandra glacier, and descended over the Punta Alexandra, 16,742 feet. The next climb was Kraeplin, 15,718 feet, which was ascended July 23rd by W. Ganshof, X. de Grunne, Lt. Marlier, P. Solvay, J. de la Vallée-Poussin, and J. Georges. Five days later, this same group with the exception of Lt. Marlier and P. Solvay made the first ascent of the unnamed peak northwest of the Punta Margherita, by the northwest rock ridge and christened it the Pointe Albert, 16,728 feet. On August 1st, de Schryver and Ganshof with the guide Georges made a new route up the east face of the Punta Helena, 16,341 feet, a very difficult climb. The same day X. de Grunne with

Dr. Noel Humphreys, who was visiting the expedition in their camp, made the ascent of the Pointe Albert and the Punta Margherita. Ganshof, Michot, de la Vallée-Poussin and Georges traversed the entire Speke ridge traversing the Punta Victor Emanuel.

Mt. Everest: On April 3, 1933, the Marquis of Clydesdale, Lt.-Col. L. V. Stewart Blacker, Lt. D. F. McIntyre, and S. R. Bonnett flew over Mt. Everest and returned with a large number of photographs. It required three and a half hours for the round trip from Purnea and one of the pilots suffered severely from the cold.